Exhibit Y

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

DEUTSCHE BANK NATIONAL TRUST COMPANY, solely in its capacity as Trustee for the MORGAN STANLEY STRUCTURED TRUST I 2007-1,
 	
                  Plaintiff,
     v.
 	
MORGAN STANLEY MORTGAGE CAPITAL HOLDINGS LLC, as Successor-by-Merger to MORGAN STANLEY MORTGAGE CAPITAL INC.,
 	
                  Defendant.
	14-CV-3020(LTS)(AJP)

REBUTTAL EXPERT REPORT OF
DR. JOSEPH R. MASON

January 25, 2017

Confidential

TABLE OF CONTENTS

Confidential

Confidential

I.   **Introduction**

1.   I am the same Joseph R. Mason that filed an expert report regarding damages in this matter on August 22, 2016. I present my updated list of publications in the last ten years and case testimony in the last four years in Appendix A to this report.

2.   I have been asked by Plaintiff's Counsel to respond to the Reports of Christopher M. James and Phillip R. Burnaman. In my opinion, Mr. Burnaman's characterization of the Repurchase Protocol in Section 10 of the MLPA relating to how loan defects "materially and adversely affect[ ] the value of the interests of the Purchaser in any of the MSMCH Represented Mortgage Loans" is flawed, and Dr. James's conjectures about home prices as the proximate cause of mortgage defaults – to the exclusion of underwriting defects – have no basis in the vast body of published empirical economic work as well as his own regression analysis presented with his report. None of the opinions of Dr. James or Mr. Burnaman change my earlier assessments of damages presented in this matter. The reasoning behind my opinions is explained in more detail below.

II.   **Qualifications**

3.   My consulting practice specializes in applying financial, economic, valuation, and statistical analyses to complex commercial litigation and corporate strategic matters. I have provided expert consulting services and testimony in a broad range of banking and financial services industry matters. The knowledge and experience that I possess regarding these fields will assist the trier of fact in understanding the evidence and determining the facts that are at issue in this case.

4.   From 1995 to 1998, I was trained in Consumer Credit School at the Office of the Comptroller of the Currency, the primary regulator of nationally chartered banks. There I

advanced to Senior Financial Economist performing research on consumer credit and financial markets, inclusive of mortgage servicing, servicer performance, and the valuation, packaging, and sale of mortgage servicing rights. From 1999 to 2008, I continued my work in consumer credit with the Federal Reserve Bank of Philadelphia and the Federal Deposit Insurance Corporation, conveying market knowledge and analyses to research and supervision and examination staff. I have written papers and testified before Congressional Committees on the topic of mortgage origination and securitization.

5.   Economists Inc. is being compensated for my work in this matter at my standard hourly rate of $850. Other Economists Inc. professionals, working under my direction and supervision, assisted in my analyses, and Economists Inc. was or will be compensated for their work at their customary hourly rates. Our compensation is not contingent in any way upon the outcome of this matter or the content of my opinion.

III.   **Assignment and Summary of Opinions**

6.   I have been asked by counsel for the Trustee to respond to certain opinions of Defendants' Experts regarding the Morgan Stanley Structured Trust I 2007-1 ("MSST 2007-1" or the "Trust").

7.   Mr. Burnaman was asked by counsel for Morgan Stanley Mortgage Capital Holdings, LLC, as successor-in-interest to Morgan Stanley Mortgage Capital Inc. ("Morgan Stanley" or "Defendant") to opine on his interpretation of various provisions of the Pooling and Servicing Agreement ("PSA"), Mortgage Loan Purchase Agreement ("MLPA"), and Accredited Assignment & Recognition Agreement ("A&RA") in this securitization. In particular, Mr. Burnaman opines on the repurchase protocol and the definition of "Material Adverse Effect" as that pertains to the contractual terms governing the relationship between the Defendant and

Confidential

the Trustee (on behalf of investors). Mr. Burnaman opines, among other things, that repurchase "can be invoked only to address breaches in specific loans that had the requisite material, adverse effect,"[1] and that "RMBS trustees historically made repurchase demands only after identified loans defaulted or went seriously delinquent, and only after those loans were reviewed for representation and warranty breaches."[2]

8.   Dr. James was asked by counsel for Defendant to "assess whether empirical evidence is consistent with their claim that the alleged breaches of representations and warranties with respect to the loans that were deposited into the Trust had a material and adverse impact on the performance of the loans."[3] Dr. James continues: "The U.S. housing market suffered significant deterioration starting in 2006 and continuing into 2009, leading to an economic recession that was characterized by a large unexpected increase in unemployment and decreases in house prices. These adverse economic conditions led to a large and unexpected increase in mortgage loan delinquencies, defaults, and losses."[4] Finally, Dr. James concludes that "there is no statistically significant difference between the performance of the loans in the Trust with material breaches alleged by Plaintiff's experts and the performance of the loans in the Trust for which Plaintiff's experts have not alleged any material breaches. Therefore, I conclude that the alleged breaches did not have a material adverse impact on the performance of the loans."[5]

9.   After reviewing the reports from the Defendant's Experts and conducting my own analysis, I have formed the following opinions, as further discussed below:

---

[1] Burnaman Report ¶ 45.
[2] *Id.* ¶ 71 (emphasis omitted) (citing Fed. Hous. Fin. Agency Office of Inspector General, *Evaluation of the Federal Housing Finance Agency's Oversight of Freddie Mac's Repurchase Settlement with Bank of America*, Evaluation Report: EVL- 2011-006, at 1 (Sept. 27, 2011) [hereinafter FHFA Report]).
[3] James Report ¶ 6.
[4] *Id.* ¶ 15.
[5] *Id.* ¶ 16.

Confidential

- Mr. Burnaman's opinion that the repurchase protocol can only be invoked after a default or liquidation of a loan is contradicted by the very documents that he relies on and is logically flawed.

- Mr. Burnaman's opinion that sampling cannot be used in satisfaction of the repurchase protocol is also contradicted by the very documents that he relies on and is logically flawed.

- Dr. James implicitly asserts that delinquencies increased and that housing prices and economic performance declined for reasons unrelated to underwriting defects such as those found by Mr. Hunter and the follow-on defaults and foreclosures related to those practices.[6] Dr. James's conclusion in this regard is not supported by the literature he cites and is incorrect.

- Widespread defective underwriting led to a *feedback effect* in delinquencies, defaults and foreclosures, housing price declines, and economic activity that ultimately rendered all mortgages more likely to pose losses to investors. Defective underwriting makes it more likely that a trust will suffer losses because delinquencies, defaults, and foreclosures are more likely. Defective underwriting and its resulting risks also make it difficult for investors to measure the risk of the loans they are investing in because the characteristics of those loans are measured imprecisely. The uncertainty engendered by such defective underwriting market-wide affected investors' ability to measure the probable performance of mortgages in MSST 2007-1 in particular, as well as the marketplace in general. When investors realize that they face substantial

---

[6] Dr. James's account of economic activity in U.S. housing and labor markets begins with home price declines, ignoring the effects of widespread defective underwriting at the originators of the MSST 2007-1 loans (as well as many other originators) that preceded such declines.

uncertainty that cannot be reconciled in a timely manner, they rationally retreat from the marketplace in what is typically called a "crisis" or "panic." The dramatic decline in investor demand for RMBS – old and new – also contributed to a sharp reduction in the availability of new mortgage lending, since securitization of mortgage loans had been a major source of funding flow for new mortgages. Defective underwriting of the MSST 2007-1 mortgages, therefore, not only had a material and adverse impact on the performance of the loans in the Trust but also played a role in causing the subsequent mortgage market downturn and financial crisis.

- Dr. James's comparison offered in his Exhibit 1 is deeply flawed and unreliable. In particular, many of the "Comparable Deals" Dr. James used in his Exhibit 1 have been the subject of allegations similar to those in the present matter, namely that the trust is riddled with defectively underwritten loans, rendering the "Comparable Deals" an unsuitable control group for use as a "Comparison Sample" with the Hunter Report Loans.

- Dr. James's regression analysis also suffers from the following flaws:

  o Dr. James's 30-day delinquency criterion for default is overly aggressive. Loans frequently become 30 days delinquent but do not actually default for many months (if ever). Dr. James's use of this criterion mischaracterizes the known and actual performance of many of the loans in the sample and causes his model to associate defaults among those loans with the wrong macroeconomic influences, generating unreliable results.

  o Dr. James's model is not robust for other classifications of default. In other words, when one uses any other criteria for default – such as delinquency of

60 days or greater or foreclosure (as the authors Dr. James relies upon do) –
none of Dr. James's macroeconomic variables explain mortgage defaults with
statistical significance, belying Dr. James's key contention that such variables
caused a "material adverse effect," to the exclusion of the Hunter defects.

o   Dr. James's use of the set of loans from which damages are derived for a
wholly different purpose – that of building a regression model to evaluate the
effect of breaches upon loan performance – imparts upon his model a well-
known partial observability problem that renders his regression results
unreliable.

IV.   Mr. Burnaman's Legal Interpretation of "Material and Adverse" in the PSA and MLPA Repurchase Protocol Ignores the Economic Interpretation of Value

10.   Mr. Burnaman cites the "Material and Adverse" provisions of the PSA and

MLPA in paragraph 48 of his report, noting:

> The MLPA provides that the Repurchase Protocol is triggered only "[u]pon
> discovery or receipt of notice by MSMCH or the Purchaser of a breach of any
> representation or warranty of MSMCH set forth in this Section 10 which
> materially and adversely affects the value of the interests of the Purchaser." . . . .
> The PSA similarly provides that the Repurchase Protocol is triggered only
> "[u]pon discovery by any of the parties hereto of a breach of a representation or
> warranty set forth in the Mortgage Loan Purchase Agreement or any Bring Down
> Agreement that materially and adversely affects the interests of the
> Certificateholders in any Mortgage Loan."[7]

11.   Mr. Burnaman opines, among other things, that repurchase "can be invoked only

to address breaches in specific loans that *had* the requisite material, adverse effect,"[8] and that

"RMBS trustees historically made repurchase demands only after identified loans defaulted or

---

[7] Burnaman Report ¶ 48 (emphasis omitted).
[8] *Id.* ¶ 45 (emphasis added).

went seriously delinquent, and only after those loans were reviewed for representation and warranty breaches."[9]

12.   In essence, therefore, Mr. Burnaman asserts that "material adverse effect" only arises with defaults (*i.e.*, *ex post*). But that view (1) ignores the economic definition of "value" and (2) ignores the thrust of material cited by Mr. Burnaman himself.

13.   With regard to value, Mr. Burnaman's adherence to an *ex post* concept of "material adverse effect" occurring only upon an actual default and recognition of actual loss fundamentally ignores the economic fact that increased default probability, alone, decreases value. In other words, an increased risk of loss is a material and adverse effect, whether or not the affected loans actually default and suffer loss. In Sections V and VI of this report, I review a variety of academic and industry literature that confirms that defective underwriting increases risk of loss.

14.   Mr. Burnaman cites as evidence of his assertions the Federal Housing Finance Agency Office of the Inspector General's Report, "Evaluation of the Federal Housing Finance Agency's Oversight of Freddie Mac's Repurchase Settlement with Bank of America."[10] But while that document opined that Freddie Mac did at times evaluate loans for representation and warranty breaches only after default and loss, the OIG castigated Freddie Mac for doing so, confirming that Freddie Mac would have the ability to do otherwise. The document cited by Mr. Burnaman also indicates that Freddie Mac may satisfy repurchase requests via repurchase or indemnification from future loss, indicating that such evaluation may take place prior to loss

---

[9] *Id.* ¶71 (emphasis omitted) (citing FHFA Report at 1).
[10] *Id.*

rather than only afterward.[11] Thus, Mr. Burnaman's own sources suggest that his opinion that "Material and Adverse" can be demonstrated only by default and loss is incorrect.

15.   Mr. Burnaman's opinions are fundamentally at odds with the economic principles underlying representations and warranties that I described in my opening report. As I noted in my opening report, representations and warranties enable securitization markets to reconcile information asymmetries and function at efficient prices, while protecting certificateholders from uncertainty and loss arising because of inaccurate loan attributes and production risk—protections they rationally require given the difficulty in quantifying (and pricing) such risk.

16.   Consistent with the economics of securitization, the repurchase remedy places the risk of discrepancies on the seller, who made the representations and warranties, by forcing the seller to buy back or, in some cases, indemnify losses on loans for which it provided the assurances.

17.   Thus, contrary to Mr. Burnaman's suggestions, my calculation of repurchase damages is fully consistent with the purpose of representations and warranties. The calculation of damages that results from a sample demonstrates with a reasonable degree of professional certainty an amount of money that is economically equivalent to that which would be obtained by re-underwriting all loans in the Trust and honoring the resulting repurchases that would be demanded of Morgan Stanley. In other words, if, instead of sampling, the Trustee had re-underwritten every loan in the Trust and Morgan Stanley had repurchased those with breaches of representations and warranties, the net economic effect of those transactions would be a payment of between $281 million and $322 million from Morgan Stanley to the Trust.

---

[11] FHFA Report at 8 ("If the purchasing Enterprise later discovers that the loan contains a defect . . . then the Enterprise has the contractual right to require the seller to repurchase the loan at its full face value or to indemnify the Enterprise for losses incurred.").

18.   At paragraphs 26 and 61-68, Mr. Burnaman suggests that, based upon his professional experience, "sampling and estimation would frustrate the Repurchase Protocol and Sole Remedy provisions."[12] The remainder of paragraph 26 and the detail in paragraphs 61-68 suggests that Morgan Stanley would be deprived of recoveries should sampling and estimation of repurchase obligations be undertaken. Mr. Burnaman's criticisms are inapplicable to my analysis. My report on damages estimates not *gross* repurchase obligations but repurchase damages *net* of any such recoveries. In other words, my damages estimate accounts for recoveries that Morgan Stanley would gain from loss mitigation activities that it could undertake after repurchasing the loans.

19.   Portions of Mr. Burnaman's criticisms at paragraphs 61-68 suggest – but do not even attempt to show – that Morgan Stanley would have done something differently than the existing servicer to reduce losses further and was somehow deprived of that right. First, that opinion flies in the face of Mr. Burnaman's testimony that repurchase is typically effectuated "after identified loans defaulted or went seriously delinquent"[13] and in foreclosure,[14] when many of the options described by Mr. Burnaman would be unavailable. Second, the PSA stipulates that the servicer should follow "customary mortgage servicing practices of prudent mortgage servicing institutions,"[15] including in Exhibit N therein: "Loss mitigation or recovery actions (*e.g.*, forbearance plans, modifications and deeds in lieu of foreclosure, foreclosures and

---

[12] Burnaman Report ¶ 26.

[13] *Id.* ¶ 71.

[14] FHFA Report.

[15] PSA at 9, § 1.01 ("Accepted Master Servicing Practices"); *see also id.* § 4.05 (servicer shall not "knowingly or intentionally take any action, or fail to take (or fail to cause to be taken) any action reasonably within its control and the scope of duties more specifically set forth herein, that, under the REMIC Provisions, if taken or not taken, as the case may be, would cause [the REMIC certificates] to fail to qualify as a REMIC or result in the imposition of a tax upon the Trust Fund"). That provision addresses Mr. Burnaman's fears regarding the status of the REMIC provision related to the repurchases considered in this matter.

repossessions, as applicable) are initiated, conducted and concluded in accordance with the timeframes or other requirements established by the transaction agreements."[16] The Prospectus Supplement states: "The servicers will use reasonable efforts to ensure that all payments required under the terms and provisions of the mortgage loans are collected, and will follow collection procedures comparable to the collection procedures of prudent mortgage lenders servicing mortgage loans for their own account."[17] Mr. Burnaman does not suggest that the servicer has not performed its duties in line with industry expectations or that Morgan Stanley has special capabilities in recovering on defaulted loans that the servicer lacks. Thus, Mr. Burnaman's testimony regarding Morgan Stanley being deprived of the ability to recover on loans is mere speculation without basis in fact.

20.   Contrary to Mr. Burnaman's opinion that repurchases must be carried out on a loan-by-loan basis,[18] the FHFA Report cited by Mr. Burnaman indicates that Freddie Mac may satisfy repurchase requests via repurchase or indemnification from future loss.[19] Contrary to Mr. Burnaman's claims in paragraphs 25 and 71-72 that "sampling was not actually used to enforce the repurchase protocol,"[20] the document also discusses at length how Freddie Mac used sampling to determine the repurchase/indemnification value, as the Trustee has done here.[21]

---

[16] *Id.* Ex. N.

[17] Prospectus Supplement at S-55 (Servicing of the Mortgage Loans, Collection and Other Servicing Procedures).

[18] Burnaman Report ¶¶ 41-59.

[19] FHFA Report at 8 ("If the purchasing Enterprise later discovers that the loan contains a defect . . . then the Enterprise has the contractual right to require the seller to repurchase the loan at its full face value or to indemnify the Enterprise for losses incurred.").

[20] Burnaman Report ¶¶ 25, 71-72.

[21] FHFA Report at 21 n.32 ("In a September 23, 2010, internal e-mail chain, the Freddie Mac senior manager told the Freddie Mac manager, '[w]e have spent a fair amount of time trying to help sellers forecast loan samples and repurchase request[s].'").

21.   Mr. Burnaman asserts in paragraphs 21-23, 39, 43, and 45 that the pool-wide estimation and satisfaction of repurchase obligations for representations and warranties violates the "true sale" and "non-recourse" nature of the sale of mortgage loans from Morgan Stanley to the Trust. From my experience at the Office of the Comptroller of the Currency, the primary regulator of nationally chartered banks, "true sale" simply relates to the ability of the seller and sponsor to remove the loans from its books, removing also the need to hold loan loss provisions against the loans and removing the loans from the grasp of creditors should the seller or sponsor enter bankruptcy.

22.   But, as I explained in my opening report, any accounting and regulatory rules and legal treatment still do not change the economic fact that no rational investor would purchase mortgage loans with risks it could not properly assess. Morgan Stanley thus made the representations and warranties and promised to repurchase Mortgage Loans that breached them because certificateholders would not otherwise purchase certificates in the Trust. While the true sale divests Morgan Stanley of the need to hold capital against normal performance risk, the presence of representations and warranties causes Morgan Stanley to retain what is known as "production risk" – the risk that the loans do not have the characteristics that Morgan Stanley represented them to have. That is, while the "true sale" allowed Morgan Stanley to remove the loans from its books, it did not relieve Morgan Stanley of liability for failing to conform to its Representations and Warranties. There is thus nothing inconsistent with the "true sale" nature of the securitization and the damages sought in this case.

23.   Mr. Burnaman's opinions concerning the nature and role of representations and warranties are thus a series of *non sequiturs*. Mr. Burnaman opines that the representations and warranties are "not intended to be a guarantee of the future creditworthiness of the borrower,

protection from future housing market price declines, a first-loss policy or a form of mortgage insurance."[22] But as I noted in my opening report, representations and warranties *are* intended to be a guarantee of production risk and losses associated with that risk that are the bases of my damages analysis.

V. Dr. James's Assertion That Macroeconomic Movements Were the Cause of Mortgage Defaults Ignores the Role of Defects

24.   Dr. James opines that "[t]he U.S. housing market suffered significant deterioration starting in 2006 and continuing into 2009, leading to an economic recession that was characterized by a large unexpected increase in unemployment and decreases in house prices. These adverse economic conditions led to a large and unexpected increase in mortgage loan delinquencies, defaults, and losses."[23]

25.   In fact, increases in unemployment and decreases in house prices came *after* increases in delinquencies, defaults, and losses. It is basic logic that something has to come *before* something else for the first thing to "lead to," or cause, the other. Thus, if unemployment and house prices turned *after* delinquencies, defaults, and losses already increased, unemployment and house prices could not have *caused* the housing market collapse.

26.   Thus – contrary to the assertions of Dr. James – delinquencies, defaults, and losses and subsequent changes in unemployment and house prices were likely caused by defective subprime mortgages similar to the Hunter Report Loans. These defective loans were the result of a failure to follow underwriting guidelines by originators like those associated with the loans in MSST 2007-1, including – among other things – originating loans with undisclosed underwriting defects, including fraud. Widespread failure to follow underwriting guidelines

---

[22] Burnaman Report ¶42.
[23] James Report ¶ 15.

contributed initially to the housing bubble and subsequently led to unexpected mortgage defaults and resultant decreases in housing prices associated with the liquidation of mortgaged properties.

27.   There is growing evidence that defective subprime mortgages played a significant role in fueling the mortgage market bubble and bust. Indeed, that proposition has widespread acceptance among policymakers, industry participants, and academics.

28.   Furthermore, while it can be tempting to think that price declines and financial crises are attributable to sudden, unexpected price shocks, such shocks are exceedingly rare.[24] The reality in the recent crisis is that decreasing home prices followed from – rather than preceded – mortgage fraud and improper loan underwriting and the delinquencies, defaults, and foreclosures resulting from failures to follow underwriting guidelines.

29.   The forces that caused the mortgage crisis did not occur suddenly but built up over a period of years, creating increasing pressure on real estate markets, mortgage markets, and – as industry pressures ultimately caused a widespread recession – consumers themselves. In short, subprime mortgages plagued by defects of the type alleged in this case substantially contributed to declining home prices and the "Great Recession" that Dr. James asserts caused the Trust's losses.

A.   Defective Loans Helped Cause the Mortgage Crisis

30.   From the 1990s through 2006, there was a housing price bubble in the United States. During this time, housing prices appreciated rapidly and departed from the underlying fundamentals of the housing market. The formation of the bubble was, in part, the result of easy credit stemming from looser underwriting standards, which included disclosed laxity (guidelines

---

[24] *See, e.g.*, Charles W. Calomiris & Joseph R. Mason, *Contagion and Bank Failures During the Great Depression: The June 1932 Chicago Banking Panic*, 87 Am. Econ. Rev. 863 (Dec. 1997); Charles W. Calomiris & Joseph R. Mason, *Fundamentals, Panics and Bank Distress During the Depression*, 93 Am. Econ. Rev. 1615, 1615-47 (Dec. 2003).

that permitted extensions of credit to less creditworthy borrowers) and undisclosed defects (fraudulently or otherwise improperly underwritten subprime mortgages that did not meet even those looser guidelines). As described by John C. Dugan, Comptroller of the Currency from August 2005 to August 2010 in his testimony before the Financial Crisis Inquiry Commission, the formation of the bubble was in part the result of "looser loan underwriting practices," and "poor underwriting practices that made credit too easy . . . . In short, at the beginning of the 21st century, the U.S. system for mortgage finance failed fundamentally."[25]

31.   It is well-accepted that defective subprime mortgages contributed to the housing market's growth and decline. Mortgage fraud and other defective underwriting can occur during booms or busts. But according to the FBI: "During boom periods, high mortgage loan volume impacts expedited quality control efforts which often focus on production. Therefore, perpetrators may submit loans based on fraudulent information anticipating that the bogus information will be overlooked. On the other hand, loan officers, brokers, and others in the industry are paid by commission and may be tempted to approve questionable loans when the housing market is down to maintain current levels of income."[26]

32.   As the mortgage bubble was inflating, Interthinx[27] noted the prevalence of "property flipping/appraisal fraud, ID fraud and straw borrowers, and income/employment

---

[25] Statement of John C. Dugan, Comptroller of the Currency Before the Financial Crisis Inquiry Commission at 1-2 (Apr. 8, 2010), *available at* http://www.occ.treas.gov/news-issuances/congressional-testimony/2010/pub-test-2010-39-written.pdf.

[26] FBI, Mortgage Fraud Report 2006 (May 2007), *available at* https://www.fbi.gov/stats-services/publications/mortgage-fraud-2006 [hereinafter FBI Mortgage Fraud Report 2006].

[27] "Interthinx® is a provider of proven risk mitigation and regulatory compliance tools for the financial services industry. Data from Interthinx® fraud detection tools (DISSCO and FraudGUARD) include nearly 2 million loan applications from more than 2,000 mortgage originators and loan purchasers nationally. Loans are flagged for possible fraudulent activity and scored as 'Investigate' or 'Critical Risk' if they demonstrate high impact variances in employment/income, identity, occupancy, straw-buyer, property valuation, or property flipping."

fraud." During 2003-2005, Interthinx was "seeing fraud risk for: Over 48% of properties in Nevada; Over 40% of properties in Maryland; Over 30% of properties in California, Connecticut, Florida, Illinois, Michigan, New Jersey, New York, Ohio and Virginia; [and] Over 20% of properties in Arizona, Arkansas, Colorado, Georgia, Massachusetts, Minnesota, Missouri, North Carolina, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Washington and Wisconsin."[28]

33.   Defective loans helped cause *both* the inflation of the housing market bubble as well as the subsequent delinquencies, defaults, and foreclosures, playing an important role in both the housing market bubble and collapse. The U.S. Department of Housing and Urban Development in their "Report to Congress on the Root Causes of the Foreclosure Crisis" noted that the effects of underwriting defects were even more perverse: "[D]eclining house prices can be viewed as an inevitable result of the surge in risky lending rather than a cause of the resulting foreclosure crisis. As the crisis matures . . . a downward spiral can take hold as declining house prices could exert their own influence to increase foreclosures, which, in turn, depress prices further."[29] That "downward spiral" is the "endogeneity" referred to by Dr. James.[30]

FBI, 2007 Mortgage Fraud Report (April 2008), *available at* https://www.fbi.gov/stats-services/publications/mortgage-fraud-2007 [hereinafter FBI Mortgage Fraud Report 2007] (emphasis omitted). In 2014, First American acquired Interthinx. The Interthinx corporate brand has since transitioned to First American Mortgage Solutions. The data contain five indexes: Overall Index, PropVal Index, Identity Index, Occupancy Index, and EmpIncome Index.

[28] Ann Fulmer, *This Used To Be Such a Nice Neighborhood: The Aftermath and Future of Mortgage Fraud*, at 15 (Feb. 7, 2013) (Powerpoint presentation).

[29] Office of Policy Dev. & Res., U.S. Dep't of Hous. & Urban Dev., *Report to Congress on the Root Causes of the Foreclosure Crisis* 18 (2010) (emphasis in original).

[30] James Report ¶37.

B.   Delinquencies Began To Rise Before Home Prices Turned Down, So Home Prices Could Not Have Caused Delinquencies To Rise in and of Themselves, as Dr. James Suggests

34.   Defective subprime mortgages, whether based on fraud or other defective underwriting, often result in rapid delinquencies, defaults, and foreclosures. Rapid defaults in the first few months of the life of a loan are called Early Payment Defaults ("EPD"). EPDs are typically defined as loans where borrowers stop making payments before the loan is even 90 days old.[31]

35.   Such "Early Default" is often viewed by mortgage market participants as *per se* evidence of defective underwriting. In February 2007, according to the FBI's Mortgage Fraud Report, "BasePoint Analytics, a fraud analytics company, analyzed more than 3 million loans and found that between 30 and 70 percent of early payment defaults (EPDs) are linked to significant misrepresentations in the original loan applications."[32]

36.   In its 2006 Mortgage Fraud Report, the FBI highlighted that "the top ten mortgage fraud areas for 2006 were California, Florida, Georgia, Illinois, Indiana, Michigan, New York, Ohio, Texas, and Utah. Other areas significantly affected by mortgage fraud include Arizona, Colorado, Maryland, Minnesota, Missouri, Nevada, North Carolina, Tennessee, and Virginia."[33] (see figure 1 below.) The Prospectus Supplement reports that 19.94% of the loans in the MSST 2007-1 Trust were from California, 17.88% from Florida, and 8.26% from Illinois – three of the

---

[31] Matt Carter, *Damn the Early Payment Defaults, Full Steam Ahead*, Inman News (Mar. 14, 2007), *available at* http://www.inman.com/2007/03/14/damn-early-payment-defaults-full-steam-ahead/#sthash.np6Z9TPY.dpuf.

[32] FBI Mortgage Fraud Report 2006, *supra*; FBI 2007 Mortgage Fraud Report 2007, *supra*.

[33] The FBI defines "Mortgage Fraud . . . as the intentional misstatement, misrepresentation, or omission by an applicant *or other interested parties*, relied on by a lender or underwriter to provide funding for, to purchase, or to insure a mortgage loan." FBI Mortgage Fraud Report 2006 (emphasis added).

states in the top ten – and 5.68% from Arizona, which was reported as significantly affected by mortgage fraud.

Figure 1: Top Mortgage Fraud Affected Areas Based on Data from FBI, HUD/OIG, FinCEN, MARI, RealtyTrac Inc., Fannie Mae, and Radian Guaranty Inc.

Figure 3: Top Mortgage Fraud Affected Areas Based on Data from FBI, HUD/OIG, FinCEN, MARI, RealtyTrac Inc., Fannie Mae, and Radian Guaranty Inc.
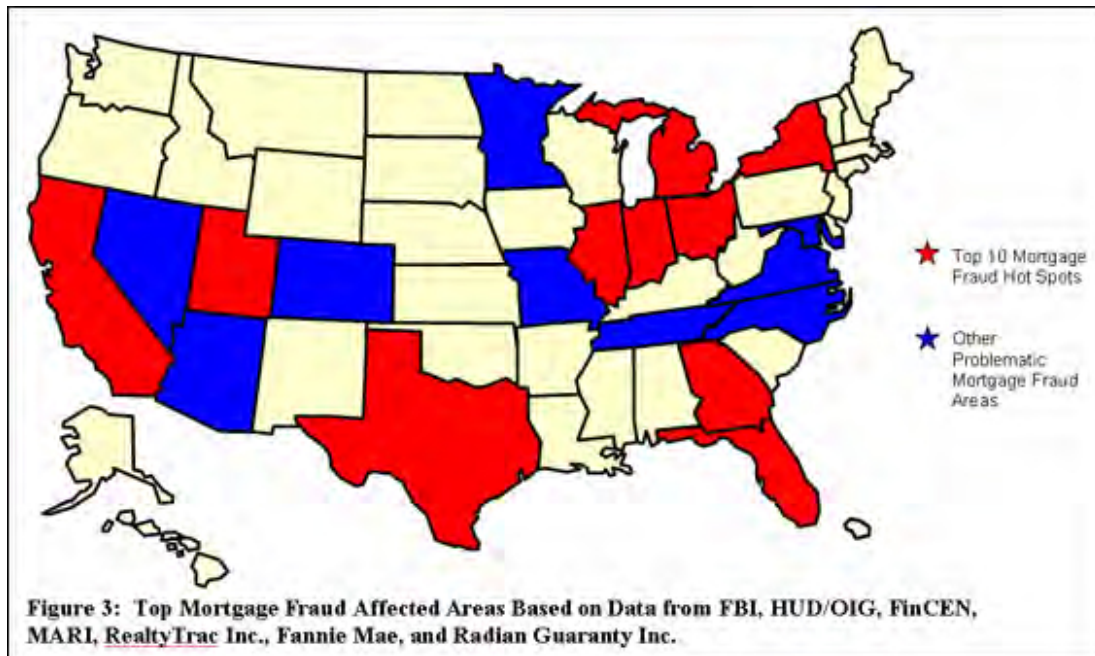
Source: FBI Mortgage Fraud Report 2006

37.   The FBI also points out that the high correlation between EPDs and mortgage fraud "suggests that EPDs are a good mortgage fraud indicator."[34] The next year, 2007, "Statistics maintained by [Radian Guaranty, Inc., a leading provider of mortgage insurance which protects lenders against loan default] indicated that Florida, California, Michigan, Texas, Ohio, Illinois, Georgia, [and] New York [– all in the top ten for mortgage fraud in 2006 – as well as] Pennsylvania, and New Jersey, respectively, were the top 10 states for the percentage of EPDs."[35]

38.   The rate of EPDs increased rapidly through late 2006 and early 2007. Jack McCleary, head of asset-backed securities trading for UBS Investment Bank, noted in March

---

[34] *Id.*

[35] FBI Mortgage Fraud Report 2007.

Confidential

2007 that EPDs grew "from 1.5 percent to 3 percent in 2005 to about double that at the end of 2006."[36] The relationship between EPDs and mortgage fraud during that period is corroborated generally by Corelogic's estimate that just under $30 billion of mortgage loans were fraudulently underwritten in 2006.[37]

39.   Defective underwriting is often associated with delinquencies, defaults, and foreclosures.[38] Sometimes those delinquencies, defaults, and foreclosures occur as EPDs. But sometimes those delinquencies, defaults, and foreclosures take more time to evolve. One observation in the FHFA Report cited by Mr. Burnaman is that delinquencies and losses from 2006 vintage loans were drawn out much further in time than had been the case previously, extending "three, four, and five years after purchase" rather than beginning to decline "during the first three years following origination."[39]

40.   Thus, the effects of defectively underwritten loans manifested not only in EPDs, but also became apparent with the passage of time as massive amounts of loans with seemingly good credit characteristics became seriously delinquent, moved through the latter stages of the delinquency, default, and foreclosure "pipeline," and were eventually offered for sale.

---

[36] Matt Carter, *Damn the Early Payment Defaults, Full Steam Ahead*, Inman News (Mar. 14, 2007), *available at* http://www.inman.com/2007/03/14/damn-early-payment-defaults-full-steam-ahead/#sthash.np6Z9TPY.dpuf.

[37] *See* FBI, Mortgage Fraud Report 2010 (Aug. 2011), *available at* https://www.fbi.gov/stats-services/publications/mortgage-fraud-2010/mortgage-fraud-report-2010.

[38] *Id.*

[39] FHFA Report at 15-17; *see also id.* at 17 n.20 (noting "Freddie Mac staff advised FHFA-OIG that they disagree with the senior examiner's causation hypothesis. Alternatively, they attribute the reversed pattern of foreclosures . . . to falling home prices leading to negative equity or 'underwater' mortgages. However, causation is irrelevant to the issue in controversy. Regardless of the cause of these defaults, the search for representations and warranties defects is the point of the loan review process.").

Figure 2: Percent of Seriously Delinquent Mortgages in California and the U.S., by Number of Loans, 2001-2007
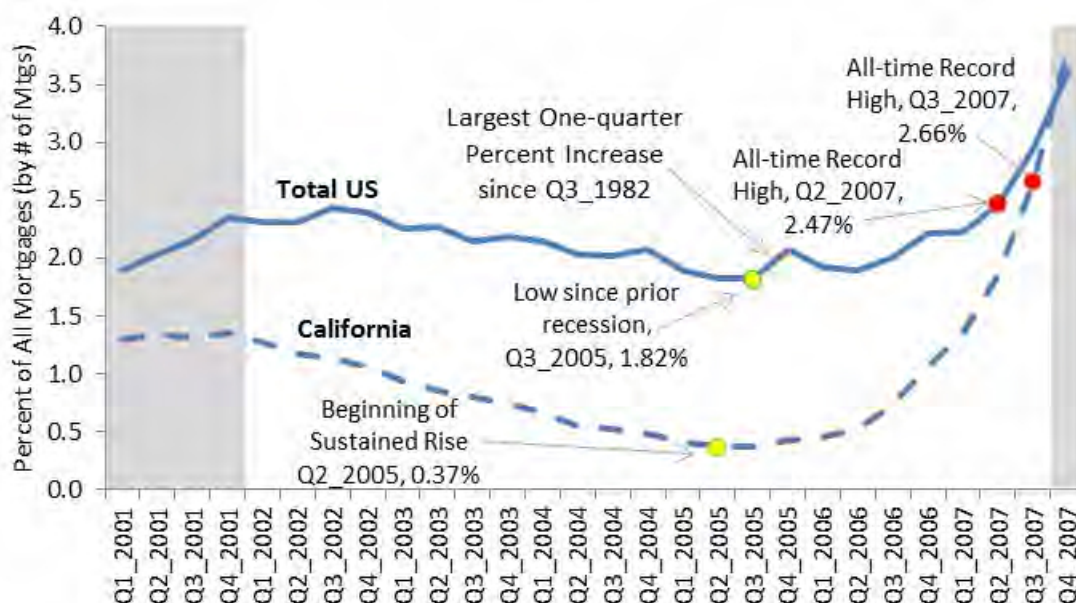
41.   Figure 2 shows the growing rate of follow-on and continuing delinquencies, defaults, and foreclosures as measured by Serious Delinquency Rate ("SDQ") published by the Mortgage Bankers Association ("MBA") in their National Delinquency Survey. SDQ loans are loans that are more than 90 days past due (60 days by the Office of Thrift Supervision delinquency definition[40]) or in foreclosure in the U.S.[41] The SDQ is an important metric because the vast majority of mortgages that become seriously delinquent go into foreclosure.

---

[40] Kyle Lundstedt, of Andrew Davidson & Co., Inc., explains the difference between the OTS method and the MBA method of defining delinquency as follows: "Consider the following example of a current loan with a payment due on April 1. With no payment received by April 30, the loan would be 1 month (30 days) delinquent as of the May reporting cycle under the MBA method, whereas the OTS/FFIEC method still would show the loan as current. With no payment received by May 31, the loan would be 2 months (60 days) delinquent as of the June reporting cycle under the MBA method, and 1-month (30 days) delinquent under the OTS/FFIEC method. In short, a borrower that misses one payment is current under the OTS method and 1-month delinquent under the MBA method." Kyle G. Lundstedt, *Modeling Mortgage Risk: Definitional Issues*, Andrew Davidson & Co., Inc., at 2 (Apr. 2005).

[41] The MBA describes itself as "representing ALL segments of the real estate finance industry." MBA, *Who We Are*, https://www.mba.org/who-we-are (emphasis in original). "The National Delinquency Survey is one of the most recognized sources for residential mortgage delinquency

42.   The SDQ first began rising in important markets like California in 2Q2005; and nationwide in 3Q2005, after mortgage fraud and resulting EPDs had already reached sizable proportions. By 4Q2005, the SDQ rose nationally from 1.82% to 2.08%, accompanied by further increases in EPDs. That increase was important because the last time the industry had seen such a large jump in percent change terms ([2.08% - 1.82%]/1.82% = a 14.29% increase) was in 3Q1982.

43.   The SDQ fell in 1Q2006 and 2Q2006, although not enough to offset the 4Q2005 increase. In 3Q2006, the SDQ began what would become a large and sustained rise. In 2Q2007, the U.S. SDQ surpassed the highest levels on record, with California surpassing its own record highs[42] in 3Q2007.

44.   The rise in fraudulent loans preceded more delinquencies, defaults, and foreclosures. Those delinquencies, defaults, and foreclosures also preceded home price declines and the economic recession.

45.   As delinquencies due to defective underwriting became defaults and foreclosures and the homes were marketed for sale, there was a decline in demand accompanying an increase in supply. As more borrowers were unable to pay their debts, the demand for housing declined. As more homes were foreclosed upon and offered for sale, housing inventory increased. As a result of those two pressures, housing prices declined.

---

and foreclosure rates." MBA, *National Delinquency Survey, available at* http://www.mbaa.org/ ResearchandForecasts/ProductsandSurveys/NationalDelinquencySurvey.htm. Data are typically released about 30 days after the end of the quarter. The data produced by the MBA is routinely relied upon by real estate professionals and investors.

[42] The MBA began collecting and reporting delinquency data systematically in 1979.

46.   As SDQs expanded throughout the nation, existing home sales peaked in September 2005 at an annualized rate of about 7.25 mm units, declining through 2006 to about 6.25 mm units, and falling even more steeply in 2007 (see figure 3).

Figure 3: Existing Home Sales, Monthly (Annualized), January 1999 – July 2009

Source: National Association of Realtors

47.   As SDQs continued to rise and home sales fell in response to decreased demand, "New Foreclosures" continued to add to supply. Figure 4 shows New Foreclosures started each quarter, as reported by the MBA in their National Delinquency Survey. "New Foreclosures" refers to the process of taking possession of a mortgaged property as a result of the mortgagor's failure to keep up mortgage payments. New Foreclosures are important because the properties underlying the associated loans are on the verge of liquidation, at which point they will be made available for sale to new buyers. Foreclosed homes offered for sale add to the market supply, and more supply – holding demand constant – pushes down prices. More supply – accompanied by falling demand – pushes down prices even more forcefully.

Figure 4: New Mortgage Foreclosures, by Number of Loans, 2001-2007
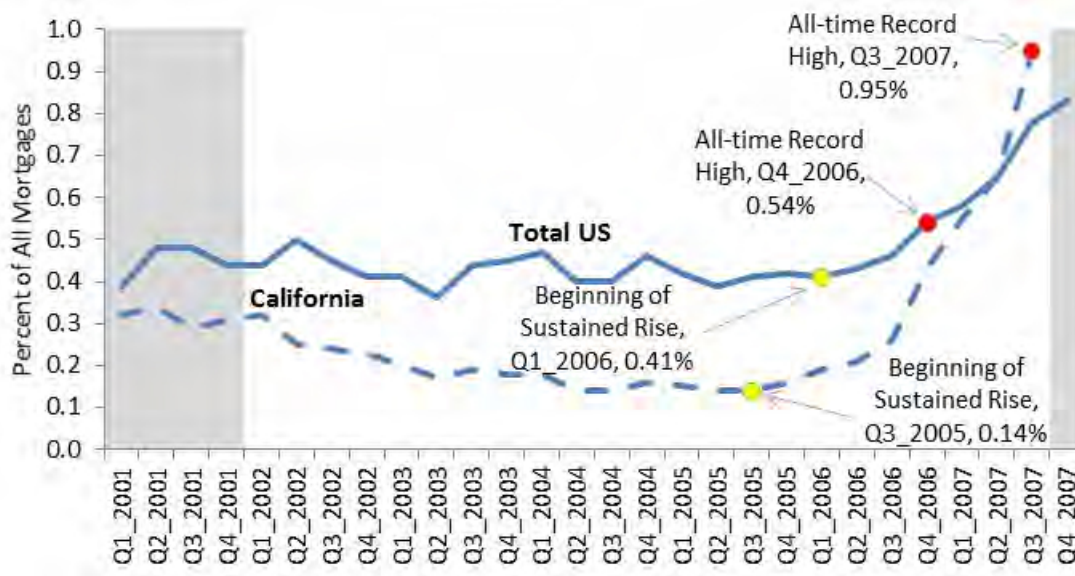
48.   In 2Q2005, New Foreclosures in both California and the U.S. began to rise. New Foreclosures in the U.S. began to rise rapidly from a low since the prior recession of 0.41% in 1Q2006 to an all-time record high of 0.54% in 4Q2006, an increase of 31.71% over the four quarters. California, having experienced a more volatile past history, saw a sustained increase starting in 2Q2005 and reached its all-time record high New Foreclosure rate of 0.95% in 3Q2007.

49.   As foreclosures added to housing supply and existing home sales fell, home prices began to decline. Figure 5 shows that in June 2006 – after home sales had been falling and SDQs and New Foreclosures had been rising for some time already – the Case-Shiller 10- and 20-city composite indices (seasonally adjusted) both peaked. Both Case-Shiller price indices fell steadily until early 2009 when they hit June 2006 (peak)-to-April 2009 (trough) losses of about 33%. Prices then bounced around a little bit before bottoming-out at losses of about 35% in March 2012.

Figure 5: Case Shiller 10- and 20-City Composite Indices, Seasonally Adjusted, Percent Change over Previous Month, January 2006-July 2007
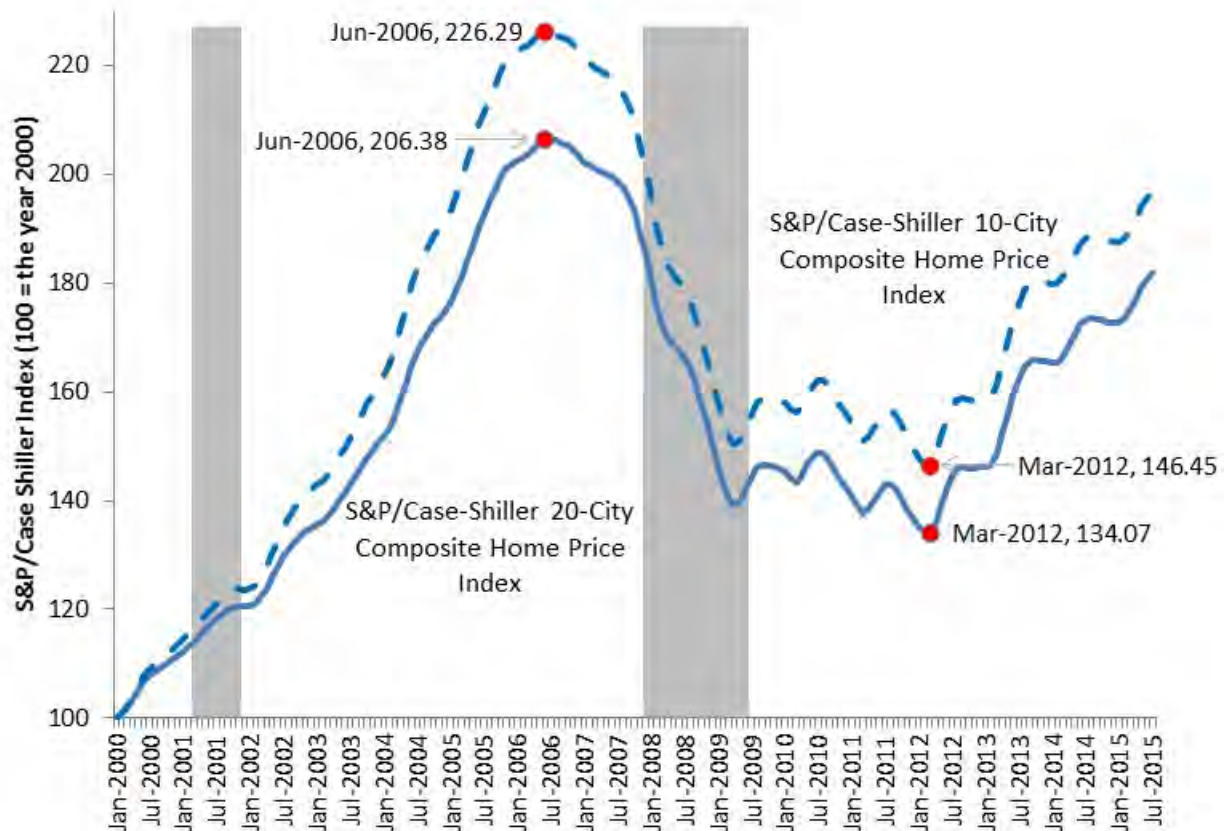
Source: S&P Dow Jones Indices LLC

50.   Only after the above factors combined did the recession – shaded in gray along with the 2001 recession in the Figures above – take hold. Declining home prices and economic performance were, at least in part, the result of the types of defective underwriting alleged in the MSST 2007-1 mortgages. Far from being *caused by* the economy, therefore, the defaults on defectively underwritten MSST 2007-1 loans *helped cause* the economic slowdown and recession that followed.

C.   **Once the Cycle Began, a Feedback Loop Between Defaults and Home Prices, in Tandem with Existing Defective Mortgages Market-Wide, Helped Create a Deep Recession and Mortgage Market Meltdown**

51.   Over time, the factors described above – increased delinquencies and foreclosures and declining home sales and prices – reinforced one another. Falling home prices caused yet

23

more delinquencies, defaults, and foreclosures, and the increasing supply of homes for sale depressed prices further. This classic feedback loop ultimately led to a financial crisis and recession, which reinforced the dynamic yet further. The FBI pointed out this feedback loop generally in its 2005 Financial Crimes Report to the Public, noting that "[c]ombating significant fraud in this area is a priority, because mortgage lending and the housing market have a significant overall effect on the nation's economy."[43]

52.   The fact that such a feedback loop formed in the economy is not controversial. As noted in 2011 by Martin S. Feldstein, a professor of economics at Harvard University, head of the National Bureau of Economic Research ("NBER"), and chair of the Council of Economic Advisers from 1982 to 1984 under President Ronald Reagan: "House prices are falling because millions of homeowners are defaulting on their mortgages, and the sale of their foreclosed properties is driving down the prices of all homes."[44] Even more pointedly, the U.S. Department of Housing and Urban Development in 2010 opined that "declining house prices can be viewed as an inevitable result of the surge in risky lending rather than a cause of the resulting foreclosure crisis. As the crisis matures . . . a downward spiral can take hold as declining home prices could exert their own influence to increase foreclosures, which, in turn, depress prices further."[45]

53.   That spiral was exacerbated by the uncertainty about mortgage defaults imbued by defective underwriting. As described previously, the predictability of mortgage-backed securities performance depends crucially on the quality of the information regarding underlying loans established in the underwriting process. If the loans are not underwritten properly, the

---

[43]   FBI, *Financial Crimes Report 2005* (May 2005), https://www.fbi.gov/stats-services/publications/fcs_report2005.
[44] Martin S Feldstein, *How To Stop the Drop in Home Values*, N.Y. Times (Oct. 13, 2011).
[45] Office of Policy Dev. & Res., U.S. Dep't of Hous. & Urban Dev., *Report to Congress on the Root Causes of the Foreclosure Crisis* 18 (2010) (emphasis omitted).

characteristics underlying the mortgages may be mismeasured. When such characteristics are mismeasured, the measurement errors induce statistical error into mortgage performance estimates, which in turn induce error into the performance estimates of the securitizations backed by those mortgages. As it became clear that the mortgage market was rife with underwriting defects, it became increasingly clear to investors that they were not able to accurately measure the risks of their RMBS holdings. The available data on loan characteristics no longer predicted performance with a reliable degree of accuracy, and investors were not able to determine (without laboriously re-underwriting the loans) which investments were backed with properly underwritten loans and which were not. In the classical rational response, investors exited the market altogether.[46]

54.   Together, these factors were significant contributors to the wholesale collapse of the RMBS market. Figure 6 shows that in 2005, the non-agency RMBS market peaked at $726.4 billion in issuance, declining to $686.1 billion in 2006, $507.2 billion in 2007, and – essentially shutting down – $27.9 billion in 2008 and $0.9 billion in 2009. The market has remained a

---

[46] As the Nobel Prize-winning economist George Akerlof has explained:

> Consider a market in which goods are sold honestly or dishonestly; quality may be represented, or it may be misrepresented. The purchaser's problem, of course, is to identify quality. The presence of people in the market who are willing to offer inferior goods tends to drive the market out of existence . . . . It is this possibility that represents the major costs of dishonesty – for dishonest dealings tend to drive honest dealings out of the market. There may be potential buyers of good quality products and there may be potential sellers of such products in the appropriate price range; however, the presence of people who wish to pawn bad wares as good wares tends to drive out the legitimate business. The cost of dishonesty, therefore, lies not only in the amount by which the purchaser is cheated; the cost also must include the loss incurred from driving legitimate business out of existence.

George A. Akerlof, *The Market for Lemons: Quality Uncertainty and the Market Mechanism*, 84 Q. J. Econ. 488, 495 (Aug. 1970).

shadow of its former self, with only $22.8 billion in issuance in 2015, the highest year since 2009.

Figure 6: U.S. RMBS Issuance ($ Billions)

Source: SIFMA, http://www.sifma.org/research/statistics.aspx
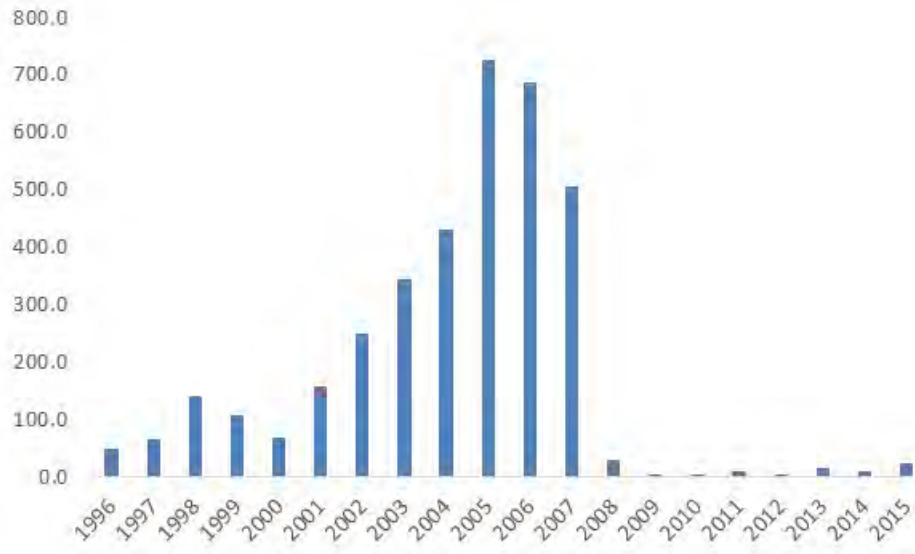
55.   The collapse of the securitization market spread beyond new mortgage originations and sales to secondary market pricing as investors came to realize that mortgage performance was fraught with not just risk, but uncertainty. At the beginning of September 2008, the ABX[47] 2007-2 Index – related to the vintage prior to MSST 2007-1 (the ABX was discontinued after the 2007-2 index) – had fallen to 46.08 for the AAA tranche, 10.08 for the AA tranche, 8.25 for the A tranche, 5.54 for the BBB tranche, and 5.54 for the BBB-minus tranche.

56.   As prices for existing RMBS fell, the market for new RMBS collapsed. The lack of availability of RMBS funding, as well as more restrictive lending practices by mortgage

---

[47] The ABX Index is "a synthetic ABS index of U.S. home equity asset-backed securities . . . . The index is a family of five sub-indices, each of which consists of a basket of 20 credit default swaps referencing U.S. subprime home equity securities. As with the Dow Jones CDX and iTraxx families of credit derivative indices, the ABX index will roll every six months. . . . The bonds are selected through a polling process of the ABX dealer group by Markit, in order to select the most liquid securities backed by home equity loans." Bus. Wire, *CDS IndexCo and Markit Launch Synthetic ABS Index* (June 16, 2008), *available at* http://people.stern.nyu.edu/igiddy/articles/abx_and_cmbx.pdf.

banks, contributed to a significant reduction in supply of mortgage lending. These feedback effects spiraled out to financial markets generally as mortgage credit was curtailed, financial institutions failed, and liquidity froze, which all had the effect of further decreasing home prices when borrowers could no longer obtain loans.

57.   Shortly after the nadir of the financial crisis – on December 1, 2008 – the NBER announced that a U.S. recession had begun in December 2007. NBER's Business Cycle Dating Committee announced that they "identified December 2007 as the peak month, after determining that the subsequent decline in economic activity was large enough to qualify as a recession. Payroll employment, the number of filled jobs in the economy based on the Bureau of Labor Statistics' large survey of employers, reached a peak in December 2007 and has declined in every month since then. An alternative measure of employment, measured by the BLS's household survey, reached a peak in November 2007, declined early in 2008, expanded temporarily in April 2008 to a level below its November 2007 peak, and has declined in every month since April 2008."[48]

58.   Taking into account a more complete history of the mortgage market bubble and bust, it is clear that defective underwriting caused delinquencies, defaults, foreclosures, and

---

[48] Bus. Cycle Dating Comm., Nat'l Bureau of Econ. Res., *Determination of the December 2007 Peak in Economic Activity*, *available at* http://www.nber.org/cycles/dec2008.html. The source refers to the December 11, 2008 memorandum, which is a revised version of the Committee's initial December 1, 2008 announcement. NBER Business Cycle Committee dating is retrospective, not prospective. The Committee pointed out in their January 2008 Memorandum that "[t]he committee's approach to determining the dates of turning points is retrospective. We wait until sufficient data are available to avoid the need for major revisions. In particular, in determining the date of a peak in activity, and thus the onset of recession, we wait until we are confident that, even in the event that activity begins to rise again immediately, it has declined enough to meet the criterion of depth. As a result, we tend to wait to identify a peak until many months after it actually occurs." Bus. Cycle Dating Comm., Nat'l Bureau of Econ. Res., *The NBER's Recession Dating Procedure* (Jan. 7, 2008), *at* http://www.nber.org/cycles/jan2003.html.

home price declines that set in motion a feedback loop that reinforced further delinquencies, defaults, foreclosures, and home price declines. In other words, declining home prices did not just come out of nowhere – they were initially caused, and later were exacerbated further, by defectively underwritten loans, such as those in MSST 2007-1, that permeated the marketplace over the mortgage bubble and bust.

59.   Dr. James is thus incorrect when he attributes the losses in MSST 2007-1 to economic factors. The very economic factors that he claims caused mortgage defaults were in fact *caused by* defective loans in the MSST 2007-1 Trust and others like it. Dr. James's conclusions from his flawed mini-model of the relationship of defective underwriting and default with regard to the MSST 2007-1 loans thus run contrary to what is already known to market participants and academics alike: Defective mortgages are riskier than non-defective mortgages and are, therefore, unacceptable to investors.

VI.   A Growing Body of Academic Research Not Cited by Dr. James Continues To Support the Industry View That Defective Loans Are Riskier Than Others

60.   Dr. James's opinions about the causes of MSST 2007-1 loan defaults ignore the above progression as well as the body of academic research demonstrating conclusively that defective loans are riskier than non-defective loans. Importantly, the additional risk of default from defective loans is all that is needed to kick off the process above, whereby defective loan defaults begin to overwhelm housing markets, eventually pushing down home prices as the inventory of homes increases. Riskier loans lead to greater defaults and higher losses, but inaccurate data on loans induces noise into statistical regressions that prevents investors (and Dr. James) from predicting such risk accurately enough to discern useful information from the data. In other words, because of the defective underwriting, the data that Dr. James relies on in his report is too unreliable to permit him to isolate the magnitude of the effect of breaches on

default. Dr. James's conclusions from his (flawed) study of the (flawed) loans in this Trust –

relying crucially upon the accuracy of their allegedly misreported characteristics – thus runs

contrary to years of academic research on the causes of increased risk of loss in mortgage loans

and should not be relied upon.

61.   Academic research supports the view that underwriting defects drove defaults and

losses. Demyanyk and Van Hemert find that "low house price appreciation was quantitatively

too small to explain the poor performance of 2006 and 2007 vintage loans . . . . [Instead, they]

uncover a downward trend in loan quality, determined as loan performance adjusted for

differences in [reported] loan and borrower characteristics and macroeconomic circumstances."[49]

62.   The defective underwriting, including fraud, that created the bubble and bust took

many forms, including those referred to by Interthinx as "Occupancy Fraud" and

"Employment/Income Fraud."[50]

63.   In the event of Occupancy Fraud, the owner is not, in fact, the occupant of the

home and is more likely to default. Mayer, Pence, and Sherlund note that Occupancy Fraud is

---

[49] Yuliya Demyanyk & Otto Van Hemert, *Understanding the Subprime Mortgage Crisis*, 24 Rev. Fin. Stud. 1848, 1852 (2011).

[50] Occupancy Fraud occurs where the borrower represents that she occupies the residence underlying the loan when, in fact, she does not. Such misrepresentation is important because if the borrower does not occupy the residence, she has less sentimental attachment to the property than otherwise, and since she is not relying upon it for shelter, she faces little or no relocation cost in the event of default and eventual foreclosure. All things being equal, therefore, such misrepresentation is associated with a higher default probability (and truthful representation usually results in a higher cost loan). Income Fraud merely refers to overstatement of income on the loan application, which skews the reported Debt-to-Income ratio ("DTI") downward and makes it look like the borrower can afford greater debt than, in fact, she can bear. Employment Fraud relates to the inaccurate reporting of employment, whether that is the fact of employment (for instance, saying you have a job when you do not) or the rank or title of such employment. In practice, Income Fraud and Employment Fraud often occur in tandem, so they are considered a single category.

associated with measurably greater default risk.[51] Piskorski, Seru, and Witkin similarly estimate that Occupancy Fraud was widespread,[52] and that loans with Occupancy Fraud demonstrated a "more than 60% higher default rate relative to the mean default rate of owner-occupants."[53] Elul and Tilson show that the effects of misrepresentation are more than just the difference between the risks of two types of mortgages, properly represented: "Mortgage borrowers who misrepresented their occupancy status performed worse than otherwise similar owner occupants and declared investors [those who reported non-occupancy], defaulting at nearly twice the rate."[54]

64.   In the event of Income/Employment Fraud, the income is misleadingly overstated, so that DTI is misleadingly understated. Mian and Sufi show that Income/Employment Fraud was also widespread, concluding that areas "with high income overstatement are plagued with mortgage fraud according to independent measures."[55] Jiang, Nelson, and Vytlacil also find evidence of widespread Income/Employment Fraud among low-documentation loans. [56] Hayre, Saraf, Young, and Chen find that the deterioration in mortgage models' ability to predict defaults between earlier vintages and 2006 can be captured by making time-dependent adjustments to

---

[51] Christopher Mayer, Karen Pence & Shane M. Sherlund, *The Rise in Mortgage Defaults*, 23 J. Econ. Perspectives 27, 32 (2009).

[52] According to the authors, "more than 27% of loans obtained by non-owner occupants misreported their true purpose." Tomasz Piskorski, Amit Seru, & James Witkin, *Asset Quality Misrepresentation by Financial Intermediaries: Evidence from the RMBS Market*, 70 J. Fin. 2635, 2671 (2015).

[53] *Id.* The authors also investigate the prevalence of misreporting where there exists a second lien on a property and find that "misrepresented second liens have a roughly 70% higher likelihood of default compared to loans with similar characteristics but with truthfully reported no second liens."

[54] Ronel Elul & Sebastian Tilson, *Owner Occupancy Fraud and Mortgage Performance*, 1 (Federal Reserve Bank of Philadelphia, Working Paper No. 15-45, Dec. 2015).

[55] Atif R. Mian & Amir Sufi, *Fraudulent Income Overstatement on Mortgage Applications During the Credit Expansion of 2002 to 2005* (NBER, Working Paper No. 20947, Feb. 2015).

[56] Wei Jiang, Ashlyn Nelson & Edward Vytlacil, *Liar's Loan? Effects of Origination Channel and Information Falsification on Mortgage Delinquency*, 96 Rev. Econ. & Stat. 1 (Mar. 2014).

Confidential

loan and borrower characteristics. Hayre *et al.* note that such differences can be summarized succinctly by making an "addition to the DTI ratio" – which is made to look more favorable (lower) through Income Fraud – of 15% for late 2006 vintages such as that in which the loans in MSST 2007-1 were originated.[57]

65.   Garmaise – using data from a mortgage originator – estimates that borrowers who misreported personal assets were almost 25 percentage points more likely to become delinquent than others.[58] Griffon and Maturana find widespread evidence of "unreported second liens, owner occupancy misreporting, and appraisal over-statements," showing that "around 48% of loans exhibited at least one indicator of misrepresentation." They conclude that misreporting is "associated with a 51% higher likelihood of delinquency."[59]

Figure 7: U.S. Property Valuation Occupancy, and Income/Employment Fraud Risk Indices
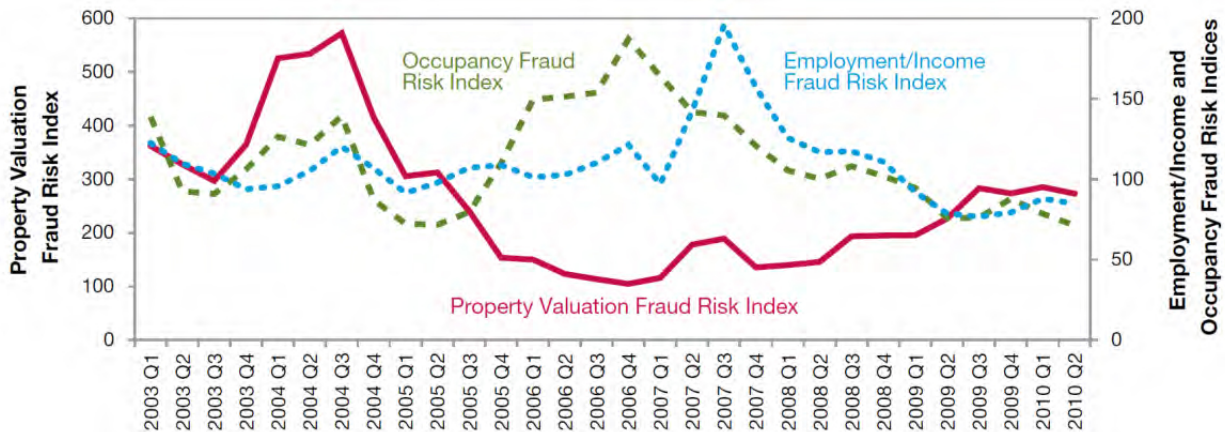
Source: *Testimony of Ann Fulmer before the Financial Crisis Inquiry Commission, September 21, 2010.* (Note that the baseline for the index is 100, so that below 100 is "low fraud risk," 100-125 is "moderate," 125-150 is "high," and 150+ is "very high.")

---

[57] Lakhbir S. Hayre, Manish Saraf, Robert Young & Jiakai (David) Chen, *Modeling of Mortgage Defaults*, 17 J. Fixed Income 6, 10 (2008).

[58] Mark J. Garmaise, *Borrower Misreporting and Loan Performance*, 70 J. Fin. 449, 449-484 (2015).

[59] John Griffon & Gonzalo Maturana, *Who Facilitated Misreporting in Securitized Loans?*, 29 Rev. Fin. Stud. 384 (2016).

66.   The mortgage industry recognizes the risks associated with defective and fraudulently underwritten loans. For instance, the FHFA stipulates that "[f]raudulent loans, not covered by any existing representations and warranties in the loan purchase agreement, should be charged off within 90 days of discovery of the fraud, or within the delinquency time frames specified in this adverse classification policy, whichever is shorter."[60] Industry fraud data confirms that Occupancy Fraud and Income/Employment Fraud were prevalent during the bubble, and even more so after the start of the bust. Figure 7 shows that Occupancy Fraud was reaching its peak in the Q3 and Q4 of 2006, while Income/Employment Fraud and Property Valuation Fraud were both rising in Q1 and Q2 of 2007.

67.   Academic and industry literature thus clearly establishes that loans with underwriting defects, fraudulent and otherwise, defaulted at a higher rate than loans without defects. That academic research thus validates the materiality of the breaches identified in the Hunter report and directly contradicts Dr. James's findings.

VII.   Flaws in Dr. James's Regressions Prevent Them from Measuring Any Meaningful Relationship Between the Hunter Defects and Default

68.   Dr. James claims that he bases his econometric model in Exhibit 6 (which selectively reports results for only a single regression coefficient of that model) upon an unpublished working paper of Dr. Christopher Palmer.[61]

69.   Dr. James claims that "economic factors, such as changes in house prices and unemployment, have a significant impact on loan delinquency, default, and losses."[62] After

---

[60] Fed. Hous. Fin. Agency, *Advisory Bulletin AB 2012-02 – Framework for Adversely Classifying Loans, Other Real Estate Owned, and Other Assets and Listing Assets for Special Mention*, at 3 (Apr. 9, 2012), *available at* https://www.fhfa.gov/SupervisionRegulation/ AdvisoryBulletins/AdvisoryBulletinDocuments/2012_AB_2012-02_Framework_for_ Classifying_Loans_508.pdf.

[61] Christopher Palmer, *Why Did So Many Subprime Borrowers Default During the Crisis: Loose Credit or Plummeting Prices?* (Univ. of Cal. at Berkeley Working Paper, 2014).

controlling for such "economic factors," Dr. James concludes from his regression exercise, in part, "I found that the default rate of loans in the sample with alleged material breaches according to Plaintiff's proffered experts cannot be statistically distinguished from the default rate of loans in the sample for which Plaintiff's experts have not alleged any material breaches. Therefore, I conclude that the alleged breaches did not have a material adverse impact on the performance of the loans."[63]

70.   In fact, there are substantial differences between Dr. James's approach and that of Dr. Palmer, including different samples, different dependent variables, and the use of substantially different regressors such that Dr. James's regression model does not, in fact, support his conclusion that "economic factors, such as changes in house prices and unemployment, have a significant impact on loan delinquency, default, and losses,"[64] and that those influences – rather than the Hunter defects – are the cause of mortgage defaults in the MSST 2007-1 trust.

> **A.   Dr. James's Selection of the First 30-Day Delinquencies as a Proxy for a Default and Loss Is Not Accepted as a Valid Analytical Measure Because It Misclassifies Many "Live" Loans as "Dead"**

71.   Dr. James counts a loan "defaulted" when it first experiences a 30-day delinquency. Dr. James points out in his report:

> For each loan in [Dr. James's] sample, [he] used a 'thirty or more days delinquent' definition to determine whether a loan is in default. This particular method considers a loan to be delinquent when no payment has been made by the close of business of that loan's due date in the following month. For example, a loan with a due date of April 1 may become delinquent by the close of business on May 1. If no payment has been made by May 31, this loan would be considered thirty days delinquent using [his] definition. This is commonly known as the Office of Thrift Supervision, or 'OTS,' method. In addition, [he] also

---

[62] James Report ¶ 22.
[63] *Id.* ¶ 32.
[64] *Id.* ¶ 22.

consider[s] as being in default loans where the property is in foreclosure, the property is bank-owned (REO), the property has been liquidated, or the loan has been charged off. This definition of default likely overstates the true number of loans that will eventually default and be foreclosed, and there are other acceptable methods of calculating default rates.[65]

Dr. James's criteria are not an accepted industry classification precisely because they "overstate[ ] the true number of loans that will eventually default and be foreclosed."[66] While Dr. James notes that "there are other acceptable methods of calculating default rates,"[67] Dr. James provides no evidence that his model is robust compared to those other methods. Upon analysis of his results, I find it is not.

72.   According to Laurie Goodman of the Urban Institute, "[a] loan is *delinquent* if a payment is between 30 and 90 days late (as measured from the original payment date). Once a payment is later than that, the concept of *default* begins."[68] Furthermore, one normally excludes loans that "cure" – or make up their missed payments[69] (which is not uncommon if the loan is only 30-days past due) – prior to the date at which one undertakes one's analysis.[70] Dr. James does not follow such conventions, rendering his regression exercise invalid.

---

[65] *Id.* ¶ 36 n.39.

[66] *Id.*

[67] *Id.*

[68] Laurie Goodman *et al.*, *To Understand Mortgage Default Rates, Ask These Three Questions*, Urb. Inst. (Mar. 30, 2015), *available at* http://www.urban.org/urban-wire/understand-mortgage-default-rates-ask-these-three-questions (emphasis added).

[69] *See, e.g.*, Freddie Mac, *Glossary of Finance and Economic Terms (A-F)*, *available at* http://www.freddiemac.com/smm/a_f.htm#C (defining the term "Cure" as "[w]hen a borrower makes restitution for loan arrearages by repaying missing installments, refinancing the loan or paying off the mortgage by selling the collateral property").

[70] Laurie Goodman, *To Understand Mortgage Default Rates, Ask These Three Questions*, Urb. Inst. (Mar. 30, 2015), *available at* http://www.urban.org/urban-wire/understand-mortgage-default-rates-ask-these-three-questions (emphasis added).

73.   First, Dr. James's 30-day "events" are not defaults, but merely delinquencies, as noted by Dr. Goodman. Dr. James, himself, refers to those at times as "[d]elinquencies."[71] Dr. James notes that "[n]umerous factors may, but do not necessarily, affect the delinquency and default risk and default outcomes associated with a particular loan,"[72] but in a rhetorical sleight of hand ends the same paragraph with the accurate statement, "[a]cademics, including myself, have commonly identified these factors as being associated with the likelihood of mortgage loan *defaults*," dropping the reference to delinquencies.[73] James continues, "as house price declines increase in magnitude, their impact on *defaults* increases at a higher rate."[74] But again, such conclusions relate to *defaults*, not delinquencies.

74.   The distinction between delinquency and default is important. Researchers typically use a default concept because it is more closely related than mere delinquency to eventual liquidation and loss. The FHFA tracks loans at an economically important stage of serious delinquency, defined as "[l]oans that have missed three or more payments or are in foreclosure."[75] The FHFA instructs that it is "appropriate to adversely classify a performing loan when well-defined weaknesses exist that jeopardize repayment."[76] The FHFA instructs that

---

[71] "Delinquency occurs when payments are received behind schedule. Delinquencies are typically defined by whether a mortgage payment is 30, 60, or 90+ days delinquent. If payments are not received, delinquent loans go into default. Defaults can be resolved in a number of ways, including through foreclosure and liquidation, a loan restructuring, or through the lender taking a deed in lieu of foreclosure." James Report ¶17 (citing Fabozzi, *et al.* (2008)).

[72] *Id.* ¶18.

[73] *Id.* (emphasis added).

[74] *Id.* ¶19 (emphasis added).

[75] *See, e.g.*, Fed. Hous. Fin. Agency, *Foreclosure Prevention Report: First Quarter 2014*, at 18, *available* at https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/Foreclosure%20 Prevention%20Report_1Q14_FINAL.pdf.

[76] Fed. Hous. Fin. Agency, *Advisory Bulletin AB 2012-02: Framework for Adversely Classifying Loans, Other Real Estate Owned, and Other Assets and Listing Assets for Special Mention* 4 (Apr. 9, 2012) [hereinafter FHFA Advisory Bulletin 2012], *available at* https://www.fhfa.gov/

"[s]ingle family residential real estate loans that are delinquent 90 days or more . . . should be classified Substandard."[77] On the same page, the FHFA defines "Substandard" as "[e]xposures [that] are inadequately protected by the current sound worth and paying capacity of the obligor or by the collateral pledged, if any. Exposure so classified must have a well-defined weakness or weaknesses that jeopardize the liquidation of the exposure. These weaknesses are characterized by the distinct possibility that the regulated entity will sustain some loss if the deficiencies are not corrected."[78]

75.   Note that the default model literature cited by Dr. James does not rely solely on 30-day delinquencies, as Dr. James seeks to do here. The Palmer, Demyanyk and Van Hemert, Sherlund, and Foote, *et al.* papers all test foreclosure.[79] The Demiroglu, *et al.*, Courchane, *et al.*, Foote, *et al.*, Gerardi, *et al.*, Haughwout, *et al.*, and Wheelock papers all test 90-day delinquencies, aligning with the FHFA definition of a "seriously delinquent" loan that suggests "a well-defined weakness or weaknesses that jeopardize the liquidation of the exposure"[80] (although none of the authors distinguishes between OTS and MBA methods of calculation). Only Demiroglu and James base their default models exclusively on 60-day delinquencies (although they do not state whether their measure is OTS or MBA). Based upon the literature cited by Dr. James, therefore, his own 30-day delinquency measure used in the present analysis is not representative of typical academic focus.

SupervisionRegulation/AdvisoryBulletins/AdvisoryBulletinDocuments/2012_AB_2012-02_Framework_for_Classifying_Loans_508.pdf.

[77] FHFA Advisory Bulletin 2012, *supra*, at 2.

[78] *Id.*

[79] Demyanyk and Van Hemert estimate a 60-day delinquency variable (although they do not say whether that is defined as OTS or MBA), but show crucially that their estimates generalize to foreclosures, as well.

[80] FHFA Advisory Bulletin 2012, at 2.

76.   The reason for focusing on later stages of delinquency or default is quite simple. The 30-day delinquency criteria is not useful because borrowers are very likely to make up their missed payments ("cure") if they are only 30-days delinquent, often becoming fully current again (after three consecutive on-time payments) at which time the lender can "re-age" the loan. Because so many 30-day delinquencies cure and re-age, 30-day delinquencies are only loosely related to liquidation and loss and therefore less useful for analysis of mortgage *losses*.

77.   The data used for Dr. James's analysis demonstrates the problem. Table 1, below, shows that Dr. James uses 386 loans in his regression, of which 359 are considered "defaulted" based on his 30-day delinquency definition. Of those 359, however, 124 (34.5% of Dr. James's "defaults") were still active as of June 2016.[81] The point is that 124 of Dr. James's 359 "dead" loans are not dead yet.

Table 1: Dr. James Incorrectly Classifies Loans as Defaulted Using His Temporary 30-Day Delinquency Measure

	Loans Dr. James Considers "Defaulted" Due to a 30-Day Delinquency
Total Considered to have Defaulted According to Dr. James	359
Number that Actually Ended Active	124
Number that Actually Ended Liquidated	235
Number of James' Default Loans that are Current as of June 2016	105
Number of James' Default Loans that Subsequently Cured (1 Month Current)	202
Number of James' Default Loans that Subsequently Re-Aged (3 Consecutive Months Current)	187

Source: Dr. James' Backup Materials

78.   Even for loans that did eventually default, Dr. James's definition of the first 30-day delinquency is also not representative of *when* the loan actually experiences meaningful

---

[81] The vast majority of those active loans, 105, were Current as of June 2016.

Confidential

economic distress. As noted above, many loans cure or re-age after delinquency even if they default later. In Dr. James's data, 202 of his 359 "defaulted" loans (56.3%) cured – that is, made up all delinquent payments – after Dr. James lists them as "defaulted" based on his 30-day delinquency criteria. Of those 202 that cured, 187 of Dr. James's 359 "defaulted" loans (52.1%) completely re-aged – that is, made up all delinquent payments *and* made three consecutive on-time payments – after Dr. James lists them as "defaulted" based on his 30-day delinquency criteria.

79.   Such cures and re-ageing are important because Dr. James omits all monthly observations for a loan once it experiences its first single 30-day delinquency. The timing of such exclusion is crucial to models like that used by Dr. James: in his effort to link default with macroeconomic factors (*i.e.*, the state of the economy), Dr. James's model evaluates macroeconomic factors at the time that he determines that a loan defaults. If the wrong default date is chosen, the model is relating the wrong economic levels to the default incident.

80.   For example, suppose Loan X first becomes 30 days delinquent in August 2008, at a time when the U.S. economy was faring poorly. Dr. James's model would associate the "default" with those poor economic factors. But suppose Loan X made up the missed payments the next month and never became delinquent again in its lifetime and was active at the time of Dr. James's report. Dr. James's model would *still* associate a "default" with the poor economic factors in August 2008, despite the obvious fact that the loan is *still alive today*. That does not make sense. In order to eliminate classifying survivors as dead, Dr. Palmer, in contrast, uses the date of Foreclosure "provided the loan ultimately terminated without being paid off in full."[82]

---

[82] Christopher Palmer, *Why Did So Many Subprime Borrowers Default During the Crisis: Loose Credit or Plummeting Prices?*, 1 n.4 (Univ. of Cal. at Berkeley Working Paper 2014). ("Following Sherlund (2008) and Mayer et al. (2009), I measure the point in time when a

Yet *more than one-third* of Dr. James's "defaulted" loans are still alive at the date of his report, subjected to his inappropriate treatment.

81.   Now suppose that Loan X recovers and then later defaults (*i.e.*, becomes seriously delinquent) in 2014, when the economy is thriving. Dr. James's model would associate the first default with the poor economy of 2008, tending to suggest that the poor economic conditions were correlated with default, when in fact the loan defaulted during good economic conditions. That is the case with another 85 of Dr. James's 359 "defaults."

82.   When the first instance of an event is not expected to be economically meaningful, modelers revert to the "last" instance instead. Figure 8 presents a histogram of the difference in months between the first 30-day delinquency and last 30-day delinquency in Dr. James's data. The distinction affects 209 (the 124 that are still active plus the 85 that defaulted later than Dr. James claims they did) of Dr. James's 359 "defaulted" loans, or 58.2% of his event classifications. The data illustrated in Figure 8 show that Dr. James's "first" 30-day delinquency and the economically meaningful "last" 30-day delinquency only agree for 150 of the 359 loans, or 41.8% of the time.

---

mortgage has defaulted as the first time that its delinquency status is marked as in the foreclosure process or real-estate owned provided it ultimately terminated without being paid off in full.").

Figure 8: Histogram of the Difference in Months between Dr. James's First 30-Day Delinquency "Defaulted" Loans Compared to a Last 30-Day Delinquency Criteria

Number of Dr. James' "Defaulted" Loans = 359. Number Differing = 209
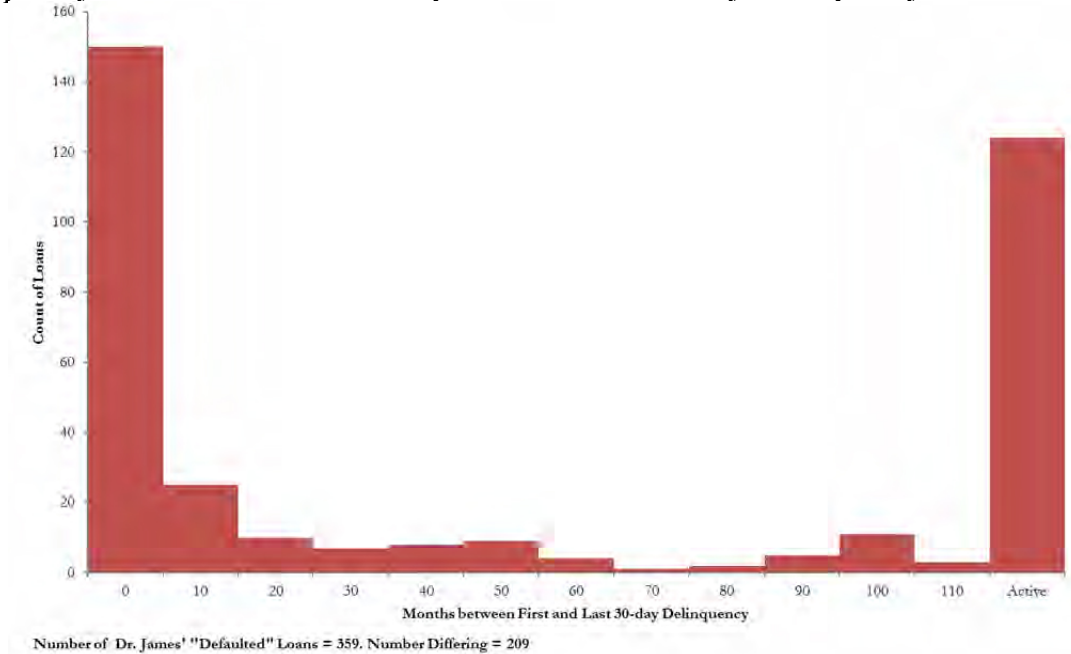
83.   As noted above, 124 of the 359 loans classified by Dr. James as "dead" are, in fact, *still alive* (classified as active) so that they have yet to experience a "last" 30-day delinquency prior to default. The 124 loans that are still alive are represented in the right-most bar in the histogram. Among the loans that eventually *did* default, 85 such loans are classified as "dead" before they actually died (as measured by the "last" 30-day delinquency before liquidation) by an average of just over 3 years and 4 months (40.1 months) ahead of their actual demise. The mis-timing of "death" for the 85 loans that did not default when Dr. James claims they did – and *mischaracterization* of death for the 124 loans that did not die and are still active, to the date of Dr. James's report – associates macroeconomic characteristics from a period of *non-distress* with the eventual distress many months later (if at all), which renders interpretation of Dr. James's macroeconomic characteristics – the ones he says are primarily responsible for default, rather than the risk arising from defective underwriting – unreliable.

40

B.   **While Dr. James Purports To Use Academic Models as a Benchmark for His Own Analysis, the Paper He Relies upon Most Heavily – That by Dr. Palmer – Measures Mortgage *Foreclosures*, Not 30-Day Delinquencies**

84.   Dr. James attempts to cast his approach in the shadow of an academic working paper, maintaining that he "implemented a similar . . . approach,"[83] in his model that computes the results shown in Exhibit 6. But the academic work cited by Dr. James (authored by Dr. Christopher Palmer) measures the effects of loan characteristics and macroeconomic covariates upon *foreclosure*, not 30-day delinquencies, to avoid precisely those difficulties outlined in my previous section regarding the timing of eventual default and loss.[84] Dr. Palmer's method also requires that a loan is "ultimately terminated without being paid off in full," meaning that loans that foreclose briefly but do not liquidate are not counted.[85] Thus, a substantial difference between Dr. James's approach and that of Dr. Palmer is that the two use different dependent variables as measures of economic distress.

85.   Dr. Palmer focuses on foreclosures rather than delinquencies because he seeks to explore the role of endogeneity in house price declines. But while a foreclosed home that is liquidated will be placed on the market for sale, increasing supply and potentially (along with existing inventory) affecting prices, loans that are just 30 days delinquent would reasonably be expected to have no such similar effect because – as shown previously – many such loans recover and are never placed on the market for sale and therefore do not increase supply.

86.   The timing difference between Dr. James's "first" 30-day delinquency and foreclosure prior to liquidation can be expected to be much more dramatic than the difference

---

[83] James Report ¶37 (citing Christopher Palmer, *Why Did So Many Subprime Borrowers Default During the Crisis: Loose Credit or Plummeting Prices?* (Univ. of Cal. at Berkeley Working Paper, 2014)).

[84] Christopher Palmer, *Why Did So Many Subprime Borrowers Default During the Crisis: Loose Credit or Plummeting Prices?* 37 n.49 (Univ. of Cal. at Berkeley Working Paper, 2014).

[85] *Id.* at 1 n.4.

between the "first" 30-day delinquency and the "last" 30-day delinquency. Figure 9 presents a histogram of the difference between the timing between Dr. James's "first" 30-day delinquency and foreclosure in months. Converting Dr. James's approach from a "first" 30-day delinquency to Dr. Palmer's foreclosure approach results in differences in timing for 358 of his 359 loans. The data illustrated in Figure 9 show that Dr. James's "first" 30-day delinquency and foreclosure agree in only a single loan, or 0.28% of Dr. James's 359 "defaults."

Figure 9: Histogram of the Difference in Months Between Dr. James's First 30-Day Delinquency "Defaulted" Loans Compared to a Foreclosure Criteria
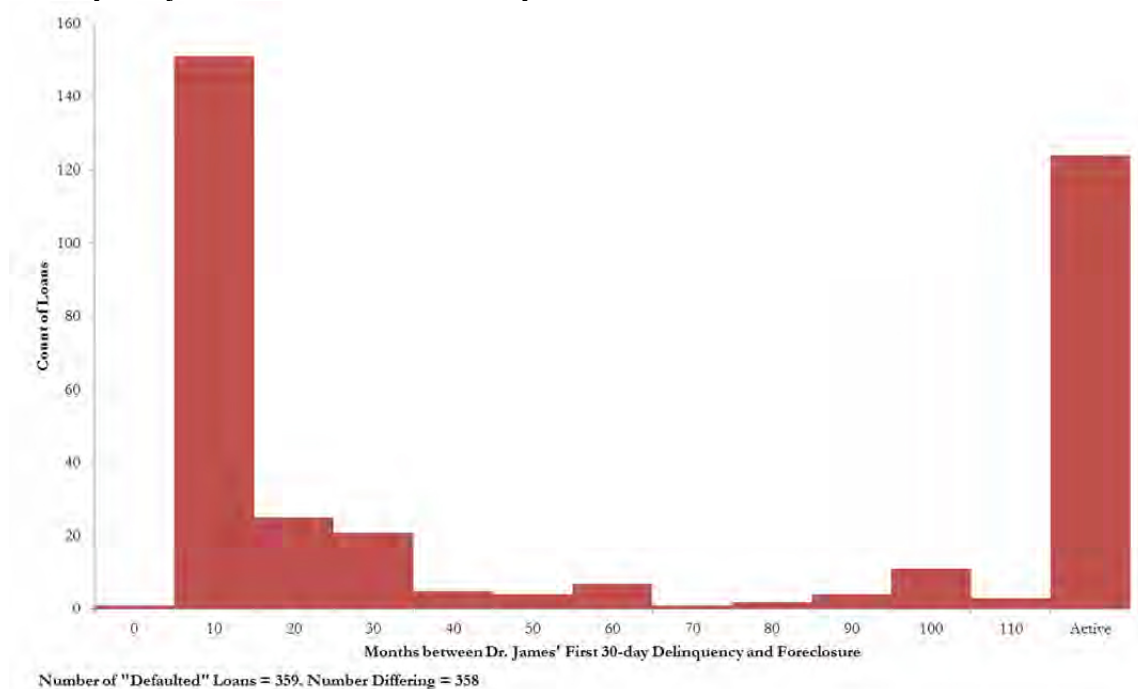
87.   As noted above, 124 of those 359 Dr. James's "defaults" are still alive (classified as active) so that they have yet to experience foreclosure. Among the 235 loans that eventually *did* go into foreclosure, 234 of the 235 loans (99.72%) are classified by Dr. James as "dead" before they *actually* died by an average of slightly less than 1.5 years (17.6 months) ahead of their actual Palmer foreclosure date. As before, the mis-timing of "death" associates macroeconomic characteristics from a period of non-distress with the eventual distress many

months later, rendering any interpretation of Dr. James's macroeconomic characteristics error-prone and unreliable.

88.   Thus, Dr. James's application of Dr. Palmer's model – built for foreclosures – to an entirely different economic dynamic – 30-day delinquencies – is inapt and does not produce meaningful results.

> **C.   The Palmer Paper Not Only Used a Different Measure of Default, It Also Used Different Covariates than Those in Dr. James's Model**

89.   Another difference between Dr. James's and Dr. Palmer's models regards the variables included in each. Dr. James adds some variables to Dr. Palmer's model, and also leaves some of Dr. Palmer's variables out of his own model. As shown in the table below, Dr. James leaves out eight of Dr. Palmer's seventeen variables, while adding another five of Dr. James's own variables. Thus, Dr. James's model cannot be considered to be grounded in existing academic research – rather, Dr. James's model is an entirely new construct independent of Dr. Palmer's work.

Table 2: Comparison of Dr. James's and Dr. Palmer's Models

	Palmer Model	James Model
Dependent Variable	Foreclosure	First 30-day Delinquency
Palmer Variables		
Loan Vintage	X	
FICO Score	X	X
Debt-to-Income ratio	X	
DTI Missing	X	
Combined LTV	X	X
Interest Rate	X	X
Full Documentation	X	X
Owner Occupied	X	X
Cash-out Refi	X	
Adjustable Rate	X	X
Interest-only	X	
Balloon	X	
Has 2nd Lien	X	
12-month Change in log(HPI)	X	X
12-month Change in log(HPI)	X	X
Unemployment Rate	X	X
CBSA Fixed Effects	X	
James Additional Variables		
Purchase Loan		X
Original Balance		X
Prepay Penalty		X
Single-family Home		X
Change in Personal Income		X

90.   DTI is widely acknowledged as an important indicator of mortgage default risk.[86]

Unlike Dr. Palmer, however, Dr. James does not include the DTI (or whether the DTI ratio is not

---

[86] *See, e.g.*, John Y. Campbell & João F. Cocco, *A Model of Mortgage Default*, 70 J. Fin., 1495-1554 (2015); *see also* Daniel L. Greenwald, *The Mortgage Credit Channel of Macroeconomic Transmission*, MIT Sloan School Working Paper (2016).

reported), yet the Back-End DTI is reported on the MSST 2007-1 Loan Tape for 90.5% of the loans and is, therefore, available for analysis.[87]

91.   Unlike Dr. Palmer, Dr. James does not include an indicator variable for whether a loan is a Cash-Out Refinance loan, yet the Loan Tape indicates that 28.5% of the MSST 2007-1 loans were Cash-Out Refinancings.[88]

92.   Unlike Dr. Palmer, Dr. James does not include an indicator variable for whether a loan had a balloon payment provision, yet the Prospectus Supplement indicates that 45.2% of the MSST 2007-1 loans have balloon provisions.[89]

93.   Unlike Dr. Palmer, Dr. James does not include an indicator variable for whether a loan was an Interest-only Loan, yet the Prospectus Supplement indicates 8.69% of the MSST 2007-1 loans had interest-only provisions ranging from five to seven years.[90]

94.   Unlike Dr. Palmer, Dr. James does not include an indicator variable for whether a loan was a Second-Lien loan, yet the Prospectus Supplement indicates 4.94% of the MSST 2007-1 loans were second liens.[91]

95.   Unlike Dr. Palmer, Dr. James also does not include indicator variables for CBSA fixed effects, accounting for the geographic region in which the property is located. The location of each property is known and reported on the loan tape.[92]

96.   Instead, Dr. James adds in variables for a Purchase Loan, the loan's Original Balance, whether the loan has a Prepay Penalty, whether the underlying property is a Single-Family Home, and an additional macroeconomic variable, Change in Personal Income.

---

[87] MSM_MSSTI_20071_0003560 (MSST 2007-1 Mortgage Loan Schedule).
[88] *Id.*
[89] Prospectus Supplement at Summary.
[90] *Id.*
[91] *Id.*
[92] MSM_MSSTI_20071_0003560 (MSST 2007-1 Mortgage Loan Schedule).

97.   In sum, therefore, Dr. James's model cannot be considered to have been justified by Dr. Palmer's construct. Rather, Dr. James's model is an entirely different model, untested and – in my opinion – deeply flawed.

D.   While the Palmer Model Finds a Role for Macroeconomic Covariates, the Sample Loans Exhibit No Such Effect in a Model of Delinquencies Greater Than 30 Days or Foreclosures

98.   Dr. James's main claim is that "economic factors, such as changes in house prices and unemployment, have a significant impact on loan delinquency, default, and losses."[93] On that basis, Dr. James then claims that if his Hunter loan indicator variable is not statistically significant in the presence of other variables that already explain loan defaults – especially the macroeconomic variables – then those other variables – in particular, the macroeconomic influences – rather than the Hunter defects are responsible for the defaults and there is no *ex post* evidence of material adverse effect.[94]

99.   The main problem with Dr. James's model begins to become apparent when one realizes that the model only finds important effects for his macroeconomic covariates with his flawed "first" 30-day delinquency measure of default, which mischaracterizes the timing of macroeconomic variables and therefore their relationship to default and loss, as discussed in detail above.

100.   Academic research typically tests whether model results obtained for one measure of default generalize to others – that is, whether the results are "robust." In other words, one would reasonably expect that if Dr. James's results are valid, they would *improve* using

---

[93] James Report ¶22.

[94] *Id.* ¶38 ("If the disclosed loan characteristics and economic factors used as control variables in my hazard model did not fully account for the risk of the underlying loans (*e.g.*, due to inaccuracies in the disclosed loan characteristics or other undisclosed factors that led to material breaches) then I would expect the analysis to show that loans with alleged material breaches significantly underperformed the loans without alleged material breaches." (emphasis omitted)).

delinquency measures that are more closely related to default and loss. Dr. James echoes such reasoning when he notes that his "definition of default likely overstates the true number of loans that will eventually default and be foreclosed, and there are other acceptable methods of calculating default rates."[95] Dr. James's model, however, is not robust.

101.   The table below shows the results of running Dr. James's model with different measures of default, including 60, 90, and 150 days delinquent and (like Dr. Palmer's model) foreclosure prior to liquidation, each of which is more accurately related to loss on the MSST 2007-1 mortgages. One would expect that if Dr. James's model is worthwhile, his results will not only hold up, but also improve, using measures of distress that are more highly correlated with loss.

102.   Dr. James's results *deteriorate*, rather than improve, with measures of default more closely related to loss. The table below shows that Dr. James's model on his "first" 30-day delinquency measure results in eight statistically significant coefficients, while running his model on foreclosure (which is much more closely related to loss) results in only two statistically significant coefficients (other than the intercept): CLTV and whether the loan was an Adjustable Rate Mortgage.

---

[95] *Id.* ¶ 36 n.39.

Table 3: Dr. James's Model Does Not Show Macroeconomic Variables Matter when Estimated with More Accurate Indicators of Mortgage Distress

DEPENDENT VARIABLE	First 30-day Delq	First 60-day Delq	First 90-day Delq	First 150-day Delq	Foreclosure
hunter	-0.08530	-0.06412	-0.10766	-0.04472	0.16090
	0.505	0.618	0.397	0.730	0.315
credit_score	-0.00333**	-0.00226*	-0.00179	-0.00174	0.00129
	0.013	0.084	0.174	0 200	0.428
doc_alt_full	-0.17542	-0.25628*	-0.25180*	-0.13965	0.08839
	0.194	0.057	0.063	0 316	0.616
occupied	-0.33876*	-0.19858	-0.15238	-0 24383	-0.33153
	0.085	0.318	0.437	0.220	0.155
purchase	-0.01594	0.04054	0.13980	0.14949	0.17216
	0.916	0.787	0.342	0 311	0.309
originalinterestrate	0.15684***	0.13271**	0.16175***	0.14055**	0.04369
	0.006	0.014	0.003	0.012	0.539
cltv	0.01130*	0.01226*	0.00772	0.00901	0.02658***
	0.085	0.054	0.218	0.170	0.003
original_balance	0.10514*	0.16104***	0.17882***	0.18869***	-0.11331
	0.069	0.004	0.001	0.001	0.149
changehpi	-0.06484***	-0.02973	0.00153	-0.01893	-0.01314
	0.004	0.131	0.933	0 286	0.478
changeunemployment	-0.10453	-0.00490	0.13651	-0.07950	-0.05052
	0.328	0.960	0.144	0 385	0.631
changepi	0.07655***	0.01343	-0.01262	-0.02709	-0.01012
	0.004	0.599	0.603	0 270	0.723
arm	0.33923**	0 32022**	0.43882***	0.44651***	0.58837***
	0.012	0.017	0.001	0.002	0.002
prepay_penalty	-0.10514	-0.06064	-0.04852	-0.14991	0.07564
	0.465	0.670	0.728	0 294	0.671
single_family	0.08503	0.07360	0.02401	0.03434	0.10757
	0.564	0.621	0.872	0.820	0.576
resid	0.05266**	0.01936	-0.01242	0.01011	0.00686
	0.020	0.329	0.500	0 570	0.707
Constant	-1.62209	-3.45885*	-3.12569*	-3.28926*	-8.70451***
	0.325	0.064	0.097	0.077	0.000
Observations	7,752	9,602	10,928	11,715	17,740
N	386	402	412	413	414
N_at_issue	249	261	268	269	271
Change_HPI_R2	0.562	0.563	0.560	0 559	0.519
Initial_R2	0.0288	0.0215	0.0206	0.0206	0.0102

103.   Of particular importance for Dr. James's claim that defaults are due to his macroeconomic variables, the *only* model that yields statistically significant coefficients on the macroeconomic variables is with Dr. James's "first" 30-day delinquency measure, which – as I reviewed previously – inappropriately counts 124 loans that did not default as defaulted and has another 85 loans defaulting at the wrong time. The macroeconomic coefficients on the Change in HPI, Change in Unemployment, Change in Personal Income, and the "Palmer" residual, are all

statistically *insignificant* in every model using a *more* accurate measure of delinquency, that is, a measure more closely related to default and loss.

104.   Dr. James's opinion that defaults were caused by macroeconomic factors rather than the breaches identified by Mr. Hunter, therefore, does not hold up because he only finds a role for such macroeconomic factors in a flawed model that mis-times the relationship between such factors and his measure of economic distress, the first time a loan becomes 30 days delinquent regardless of whether the loan went to liquidation or loss. If Dr. James cannot find a robust role for macroeconomic factors, then he is in no position to opine that such factors – rather than defective underwriting – caused mortgage defaults.

E.   While the Hunter Sample Is Valid for Evaluating Damages, It Is Not Valid for Evaluating the Causes of Default Because It Excludes a Considerable Number of Loans That Do *Not* Default – the Prepaid Loans

105.   Dr. James excludes from his regression prepaid loans, presumably because prepaid loans were not included in Mr. Hunter's reunderwriting population. I understand generally that the loans evaluated by Mr. Hunter excluded prepaid loans on the basis of their relevance to computing possible damages in this matter, not for evaluating the causes of default. But the resulting set of re-underwritten loans is not appropriate for Dr. James's regression analysis. Excluding such loans renders the analysis undertaken by Dr. James biased and his results uninformative.[96]

106.   The reason that prepaid loans are important is that borrowers who took out the loans in the Trust chose over the years to prepay, default, or pay. To put it a different way,

---

[96] Conversely, excluding prepaid loans does not make the sample inappropriate for measuring damages in the non-prepaid loans in the Trust. The sample was designed for that specific purpose. A sample is intended to provide a measurement that can be extrapolated to the population from which it was drawn. Here, the sample was drawn from the non-prepaid population, and it provides a proper measurement of the breach rate and damages in that population.

Confidential

borrowers that *are still paying or have defaulted* also chose not to *prepay*. If we exclude the group of borrowers who chose to prepay, we are biasing our data in favor of failing to distinguish defaulted and paying (*i.e.*, excluding prepaying) borrowers.[97]

107.   While the Hunter sample is valid for measuring damages, it poses a "partial observability" problem for Dr. James. Partial observability occurs when you can only see a portion of an economic process, rather than the entire relevant tradeoff. For instance, if one wants to compare the academic performance of boys and girls, but excludes from the comparison the 50% of girls with the best academic performance, one has a partial observability bias. Now, if one were to obtain results – despite the observability bias – that the observed (lower scoring) girls perform better than the boys, then one can expect the result to hold up even if we added the higher performing girls. But if we obtain results, instead, that show no statistically significant difference between the boys and girls, then we cannot conclude that boys and girls are equal. Rather, we cannot draw a valid conclusion based on the available evidence. We have a similar situation here, without the prepaid loans.[98]

108.   A proper regression analysis of mortgage default could include either the full population of loans or a representative sample of that population – including those that prepaid – but not just the non-prepaid loans used by Dr. James.

---

[97] To give an idea of the differences between the three categories of borrowers, Pennington-Cross (2003) shows that the determinants of prepayment are almost the mirror image of the determinants of default: better quality loans prepay while lower quality loans default. The implication of missing prepaid loans, therefore, is that by doing so one excludes the *lowest* risk mortgages from the regression comparison. Anthony Pennington-Cross, *Credit History and the Performance of Prime and Nonprime Mortgages*, 27 J. Real Est. Fin. & Econ. 279, Table 3 (Nov. 2003).

[98] As noted by Maddala, "in principle," one can run a regression on partially observed truncated data sets as Dr. James does; "[i]n practice, however, the results are not likely to be very good," meaning the coefficient estimates are not reliable due to the truncated data. G.S. Maddala, *Limited-Dependent and Qualitative Variables in Econometrics* 281-82 (1983).

109.   In order to illustrate the effect of including all loans, I ran Dr. James's regressions on whether loans were 30, 60, 90, 150 days delinquent or in foreclosure on all of his explanatory variables, excluding the Hunter variable, for both the Hunter sample and the full population. The point of those models is to show how the regressions better explain default when including prepaid loans (ignoring, for a moment, the Hunter variable).

110.   The left column for each set of regression results in Table 4 is estimated *using the same sample as Dr. James's regression*, while the right column of each set of regression results is estimated *using all available MSST 2007-1 loans*.

111.   Note how, in the population regressions, many of the variables are statistically significant. The borrower FICO score and the loan CLTV are always statistically significant and the correct sign, as is typical for these default models. Sometimes the macroeconomic variables even show up statistically significant. Thus, a model works better when it includes prepaid loans – that is, when it is not hampered by partial observability bias.

Table 4: Dr. James's Model Suffers Because the Hunter Sample, Excluding Loans That Paid in Full, Is Inappropriate for James's Intended Use

VARIABLES	Hunter Sample	Full Population	Hunter Sample	Full Population	Hunter Sample	Full Population	Hunter Sample	Full Population
	First 30-day Delq	First 30-day Delq	First 60-day Delq	First 60-day Delq	First 90-day Delq	First 90-day Delq	First 150-day Delq	First 150-day Delq
credit_score	-0.00331**	-0.00427***	-0.00226*	-0.00329***	-0.00178	-0.00292***	-0.00175	-0.00277***
	0.013	0.000	0.084	0.000	0.176	0.000	0.199	0.000
doc_alt_full	-0.14340	-0.24597***	-0.23331*	-0.27317***	-0.21335*	-0.29612***	-0.12323	-0.26687***
	0.255	0.000	0.064	0.000	0.093	0.000	0.346	0.000
occupied	-0.34758*	-0.21619***	-0.20256	-0.17082***	-0.15782	-0.19041***	-0.24653	-0.27956***
	0.076	0.001	0.309	0.010	0.421	0.000	0.215	0.000
purchase	-0.01202	0.04082	0.04530	0.14517***	0.14751	0.22105***	0.15225	0.17341***
	0.936	0.404	0.762	0.002	0.316	0.000	0.302	0.000
originalinterestrate	0.15578***	0.09045***	0.13153**	0.12146***	0.16030***	0.13479***	0.14005**	0.13619***
	0.007	0.000	0.015	0.000	0.003	0.000	0.012	0.000
cltv	0.01112*	0.02103***	0.01214*	0.01896***	0.00747	0.01899***	0.00891	0.01907***
	0.090	0.000	0.056	0.000	0.232	0.000	0.175	0.000
original_balance	0.09973*	0.10936***	0.15686***	0.15348***	0.17203***	0.17182***	0.18604***	0.16201***
	0.082	0.000	0.004	0.000	0.002	0.000	0.001	0.000
changehpi	-0.06416***	-0.05513***	-0.02939	-0.02873***	0.00204	-0.01893***	-0.01890	-0.02919***
	0.004	0.000	0.135	0.000	0.911	0.000	0.287	0.000
changeunemployment	-0.10631	-0.03943	-0.00599	0.04242	0.13544	0.08411***	-0.08036	-0.00161
	0.319	0.231	0.951	0.148	0.146	0.003	0.380	0.956
changepi	0.07575***	0.04717***	0.01316	0.01200	-0.01270	0.00454	-0.02693	0.00366
	0.004	0.000	0.606	0.140	0.600	0.569	0.273	0.654
arm	0.33794**	0.30611***	0.31873**	0.37135***	0.43698***	0.39292***	0.44593***	0.40363***
	0.012	0.000	0.018	0.000	0.001	0.000	0.002	0.000
prepay_penalty	-0.10765	-0.01221	-0.06646	0.04688	-0.06026	0.06657	-0.15556	0.04540
	0.454	0.794	0.639	0.304	0.664	0.140	0.273	0.328
single_family	0.08631	0.11870**	0.07515	0.08113*	0.02663	0.07527	0.03582	0.05948
	0.558	0.017	0.614	0.098	0.859	0.122	0.812	0.227
resid	0.05167**	0.03299***	0.01882	0.00697	-0.01331	-0.00383	0.00992	0.00761
	0.022	0.000	0.342	0.221	0.469	0.472	0.577	0.164
Constant	-1.63157	-1.82029**	-3.45220*	-2.70219***	-3.12569*	-2.23228*	-3.28870*	-2.25311*
	0.322	0.041	0.064	0.002	0.097	0.073	0.077	0.071
Observations	7,752	99,544	9,602	120,383	10,928	131,299	11,715	145,273
N	386	3983	402	4149	412	4279	413	4284
N_at_issue	249	249	261	261	268	268	269	269
Change_HPI_R2	0.562	0.562	0.563	0.563	0.560	0.560	0.559	0.559
Initial_R2	0.0287	0.0203	0.0215	0.0172	0.0206	0.0161	0.0206	0.0139

112.   The point is that without a model that is able to explain default in an unbiased and efficient manner to begin with, one cannot make comparisons of the causes of default. Dr. James's attempt to do so without adequate data is thus unreliable.

F.   Even if the Sample Was Properly Designed for Dr. James's Regression, Dr. James's Exhibit 5 Demonstrates That Defects and Defaults Are Associated with Similar Loan Characteristics, so That Their Effect Cannot Be Statistically Separated

113.   Dr. James estimates a regression in his Exhibit 5 in order to ascertain whether "certain loan characteristics . . . are correlated with a finding of an alleged material breach by

52

Confidential

Plaintiff's experts."[99] Dr. James establishes that "loans with full documentation, no prepayment penalties, and loans with smaller original balances are significantly less likely to be classified by Plaintiff's experts as having alleged material breaches."[100] From that analysis, Dr. James concludes, "[t]hese results underscore the significance of controlling for these disclosed characteristics in any analysis of loan performance."[101]

114.   It should not be surprising that full-documentation loans are more likely to contain defects than lower-documentation loans because the lower-documentation loans will have fewer associated documents in which to demonstrate such defects. Generally, lower-balance loans without prepayment penalties would be expected to be full-documentation loans, as well. Dr. James draws no further conclusions about Exhibit 5 in his report. I reserve the right to opine further on any conclusions he offers in testimony.

VIII.   Dr. James's Analysis of the Behavior of Loans Securitized Around the Time of MSST 2007-1 Ignores That the Originators and/or Sponsors Associated with Those Securitizations in Many Cases Allegedly or Admittedly Contain Defects

115.   Dr. James uses his Exhibit 1 in an attempt to show that, "economic factors, such as changes in house prices and unemployment, have a significant impact on loan delinquency, default, and losses."[102] At best, Exhibit 1 just shows correlation; it does not show statistical significance. But Dr. James's comparison is also flawed in other ways.

116.   In statistical terms, Dr. James's comparable deals are a "control group." The American Heritage Stedman's Medical Dictionary defines a control group as "[a] group used as a

---

[99] James Report ¶ 35.
[100] *Id.*
[101] *Id.*
[102] *Id.* ¶ 22.

standard of comparison in a control experiment."[103] It is an elementary rule that to design an experiment to test whether an observed result was caused by a given variable, the control group must lack that variable. For example, if we were to test the effectiveness of a new drug our control group would not receive the drug, but would instead receive a placebo. Were both the experimental *and* the control group to receive the drug, it would be impossible to tell what effect, if any, that drug had on the two groups of patients. Here, the variable supposedly tested is the Hunter defect characterization relating to the performance of the MSST 2007-1 loans. Thus Dr. James needed to ensure that his control group – his comparable deals – lacked defective underwriting.

117.   But Dr. James fails to present a proper comparison, as his comparable loans are, quite simply, not comparable to the MSST 2007-1 loans. As an initial matter, Dr. James's comparable loans, as he states in his report and as is reflected in his code, are from securitizations issued in December of 2006.[104] The MSST 2007-1 securitization was issued in July of 2007.

118.   According to the MSST 2007-1 Prospectus Supplement,[105] the securitization is backed by "fixed and adjustable rate, conventional, closed-end sub-prime mortgage loans." However, Dr. James's "comparable" loans are loans not just from subprime securitizations, but also Alt-A, prime, and even second-lien loan securitizations.[106] In addition, some of the loans are from "scratch-and-dent" deals, indicating that that they already had defects that were cured

---

[103] *See* Dictionary.com, *available at* http://www.dictionary.com/browse/control-group?s=t (citing The American Heritage Stedman's Medical Dictionary).
[104] James Report ¶ 37, and 'Default Chart MSA Sep 2013_output_intermediate.sas'.
[105] MSST I 2007-1 Prospectus Supplement at p. S-5.
[106] In fact, three of James's top four securitizations in terms of loan count are second-lien deals: CWHEQ 2006-S10, CWHEQ 2006-S9 and CWHEQ 2006-S8.

54

and/or disclosed as part of the securitization.[107] Dr. James even included loans from a commercial mortgage-backed security offering among his "comparable" loans.[108] Of Dr. James's 92 securitizations, only 34 (approximately 110,000 loans) were identified by ABSNet as asset type subprime and asset sub type subprime.

119.   Because Dr. James has yet to produce his reliance materials in full, I was only able to identify 92 of the 110 securitizations represented in Dr. James's "comparable" loans (representing about 86% of the approximately 275,000 loans) from the data that he provided.

120.   Based upon an evaluation of those 92 securitizations that can be identified on the basis of Dr. James's production, Dr. James also appears to have made no attempt to screen out loans originated, placed in securitizations sponsored by, or sold in offerings underwritten by the parties associated with the MSST 2007-1 securitization. For example, a cursory review shows that over 1,000 of Dr. James's comparable loans come from a Morgan Stanley sponsored offering – MSM 2006-17XS, and over 4,400 loans come from ABFC 2006-HE1, a deal in which 72.54% of the loans were originated by Accredited Home Lenders, Inc. – a named originator in the MSST 2007-1 offering.[109] In addition, there are a number of offerings from which the comparable loans were drawn for which Bear Stearns – the underwriter for MSST 2007-1 – was the securities underwriter, including BSMF 2006-AR5, BSALTA 2006-8 and LUM 2006-7. A more thorough review, which it seems Dr. James has not done, would likely identify many more loans that should have been excluded on these bases.

121.   Most importantly, Dr. James assumes implicitly that his "comparable" loans are free of the breaches affecting the Hunter Report Loans. That assumption is crucial to his analysis

---

[107] Dr. James included loans from BAYV 2006-D, SASC 2006-RF4, and CSSLT 2006-1. Each is identified by ABSNet as a "Scratch & Dent" offering.
[108] BAYC 2006-SP2.
[109] Prospectus Supplement for ABFC 2006-HE1, at S-12.

in his Exhibit 1. If the purportedly "comparable" loans are not free of defects, the comparison is not logically meaningful or statistically valid.

122.   Dr. James, however, apparently failed to perform any analysis to determine whether the "comparable" loans to which he compares the Hunter Report Loans are, themselves, free from defects. In fact, at least 66% of the securitization trusts that Dr. James uses to provide his set of comparable loans to compare with the Hunter Report Loans (and 79% of the subset of securitizations that I was able to identify) (listed in Appendix C) are *also* alleged to have widespread breaches. This represents at least 79% of the approximately 275,000 total "comparable" loans and 91% of the 237,500 loans associated with the 92 securitizations that I was able to identify.

123.   If you further restrict Dr. James's sample to those 34 securitizations that ABSNet identifies as asset type subprime and subtype subprime, at least 91% have been subject to similar allegations, representing 96% of approximately 110,000 loans.[110] Dr. James's conclusion, finding no difference between the performance of the Hunter Report Loans and his set of comparable loans in Exhibit 1 is, therefore, not meaningful or valid.

IX.   Revised Breach Rates and Revised Damages

124.   I have been asked to update my prior damages calculation on the basis of a revised breach rate of 65.7%. I display below the revised tables from my previous report. It is important to note, however, that the tables below only revise the breach rate, and do not update damages for losses imposed upon the Trust since the June 2016 remittance. As time goes by, I

---

[110] Note that this by definition excludes the 18 securitizations that I was not able to identify based on the data provided by Dr. James. It is possible that some of those are subprime securitizations.

reserve the right to update damages based upon new data that become available with the passage of time and additional information that accrues therefrom.

125.   Based on the breach rate of 65.7% as determined by Mr. Hunter and Dr. Lipshutz and the estimation techniques described in my initial report and accompanying materials, nominal damages in all three scenarios amount to $231.7 million. Because of the differences in interest rates accruing to the Trust, the present value of damages (as of June 2016) is different in all three scenarios. In Scenario 1, present value damages amount to $281.4 million; in Scenario 2, present value damages amount to $321.5 million; and in Scenario 3, present value damages amount to $305.3 million.[111]
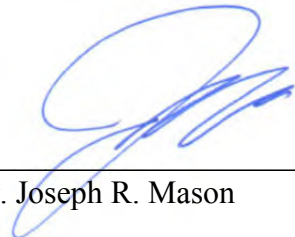
Table 5: Damage Estimates with Revised Breach Rates

Scenario 1: Damages in June 27, 2016 Repurchase and Valuation		
	Nominal ($)	NPV ($)
Past Realized Losses on Active Loans (Principal Reduction)	40,890,151	48,839,518
Past Realized Losses on Inactive Loans	155,168,052	203,533,780
Future Realized Losses on Inactive Loans	35,652,945	28,988,952
Total Losses	231,711,148	281,362,250

Scenario 2: Damages in October 4, 2007 Repurchase and June 27, 2016 Valuation		
	Nominal ($)	NPV ($)
Past Realized Losses on Active Loans (Principal Reduction)	40,890,151	55,666,433
Past Realized Losses on Inactive Loans	155,168,052	236,881,429
Future Realized Losses on Inactive Loans	35,652,945	28,988,952
Total Losses	231,711,148	321,536,813

Scenario 3: Damages in July 3, 2013 Repurchase and June 27, 2016 Valuation		
	Nominal ($)	NPV ($)
Past Realized Losses on Active Loans (Principal Reduction)	40,890,151	53,710,227
Past Realized Losses on Inactive Loans	155,168,052	222,648,585
Future Realized Losses on Inactive Loans	35,652,945	28,988,952
Total Losses	231,711,148	305,347,764

---

[111] In the event that any other breach rate is determined appropriate by the Court in this matter, such alternative breach rate may be entered into the appropriate spreadsheet cell in my work papers to determine the corresponding amount of damages.

126.   In all three scenarios above, the present value of future damages is $28.9 million, assuming repurchases are timely applied in the future. The aggregate Purchase Price of loans that are remaining in the pool but are 180+ days delinquent or in foreclosure or REO net of expected recoveries on those loans at liquidation amounts to roughly $30.0 million.

DATED: New York, New York
            January 25, 2017

_____
Dr. Joseph R. Mason

APPENDIX A

DR. JOSEPH R. MASON PUBLICATIONS AND TESTIMONY SINCE AUGUST 2016

EXPERT WITNESS TESTIMONY:

The Bank of New York Mellon solely as Securities Administrator for the J.P. Morgan Mortgage Acquisition Trust, Series 2006-WMC4 v. WMC Mortgage, LLC. et al., Index No. 654464/2012 (Sup. Ct. N.Y. Cnty.) (deposed Oct. 2016).

Law Debenture Trust Company of New York, solely in its capacity as Separate Trustee of the Securitized Asset Backed Receivables LLC Trust 2006-WM2 v. WMC Mortgage, LLC f/k/a WMC Mortgage Corp., Case No: 3:12-cv-01538-CSH (D. Conn.) (deposed Oct. 2016).

Confidential

APPENDIX B

MATERIALS RELIED UPON

Materials Produced in This Litigation

Report of Phillip R. Burnaman II
Report of Christopher M. James
Pooling and Servicing Agreement for MSST 2007-1.
Prospectus Supplement for ABFC 2006-HE1.
Prospectus Supplement for MSST 2007-1.
MSM_MSSTI_20071_0003560 (MSST 2007-1 Mortgage Loan Schedule).

Other Materials

George A. Akerlof, *The Market for Lemons: Quality Uncertainty and the Market Mechanism*, 84 Q.J. Econ. 488 (Aug. 1970).

Bus. Cycle Dating Comm., Nat'l Bureau of Econ. Research, Determination of the December 2007 Peak in Economic Activity, available at http://www.nber.org/cycles/dec2008.html.

Bus. Cycle Dating Comm., Nat'l Bureau of Econ. Research, The NBER's Recession Dating Procedure, available at http://www.nber.org/cycles/jan2003.html.

Bus. Wire, CDS IndexCo & Markit Launch Synthentic ABS Index; ABX.HE, an Asset-Backed Credit Derivatives Index, Allows Investors to Go Long or Short U.S. Sub-Prime Residential Mortgages (June 16, 2008), available at http://people.stern.nyu.edu/igiddy/articles/abx_and_cmbx.pdf.

Charles W. Calomiris & Joseph R. Mason, *Contagion and Bank Failures during the Great Depression: The June 1932 Chicago Banking Panic*, 87 Am. Econ. Rev. (Dec. 1997).

Charles W. Calomiris & Joseph R. Mason, *Fundamentals, Panics and Bank Distress during the Depression*, 93 Am. Econ. Rev. (Dec. 2003).

John Y. Campbell & João F. Cocco, 2015. *A Model of Mortgage Default*, 70 J. Fin. (2015).

Paul E. Carrillo, *Testing for Fraud in the Residential Mortgage Market: How Much Did Early-Payment-Defaults Overpay for Housing?*, 47 J. Real Est. Fin. & Econ. (2013).

Matt Carter, *Damn the Early Payment Defaults, Full Steam Ahead*, Inman News (Mar. 14, 2007), *available at* http://www.inman.com/2007/03/14/damn-early-payment-defaults-full-steamahead/# sthash.np6Z9TPY.dpuf.

Yuliya Demyanyk & Otto Van Hemert, *Understanding the Subprime Mortgage Crisis*, 24 Rev. Fin. Studies (June 2011).

Dictionary.com, *available at* http://www.dictionary.com/browse/control-group?s=t.

Ronel Elul, and Sebastian Tilson, *Owner Occupancy Fraud and Mortgage Performance*, Federal Reserve Bank of Phila. Working Paper No. 15-45 (Dec. 2015).

FBI, 2005 Financial Crimes Report to the Public (May 2005), *available at* https://www.fbi.gov/stats-services/publications/fcs_report2005.

FBI, 2006 Mortgage Fraud Report (May 2007), *available at* https://www.fbi.gov/stats-services/publications/mortgage-fraud-2006.

FBI, 2007 Mortgage Fraud Report (April 2008), *available at* https://www.fbi.gov/stats-services/publications/mortgage-fraud-2007.

FBI, 2010 Mortgage Fraud Report Year in Review (Aug. 2011), *available at* https://www.fbi.gov/stats-services/publications/mortgage-fraud-2010/mortgage-fraud-report-2010.

Fed. Hous. Fin. Agency Office of Inspector General, Evaluation of the Federal Housing Finance Agency's Oversight of Freddie Mac's Repurchase Settlement with Bank of America, Evaluation Report: EVL- 2011-006 (Sept. 27, 2011).

Fed. Hous. Fin. Agency, Advisory Bulletin AB 2012-02 – Framework for Adversely Classifying Loans, Other Real Estate Owned, and Other Assets and Listing Assets for Special Mention 3, available at https://www.fhfa.gov/SupervisionRegulation/AdvisoryBulletins/ AdvisoryBulletinDocuments/2012_AB_2012-02_Framework_for_Classifying_Loans_508.pdf.

Fed. Hous. Fin. Agency, Foreclosure Prevention Report: First Quarter 2014, at 18, available at https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/Foreclosure%20 Prevention%20Report_1Q14_FINAL.pdf.

Martin S. Feldstein, *How to Stop the Drop in Home Values*, N.Y. Times, (Oct. 13, 2011), available at http://www.nytimes.com/2011/10/13/opinion/how-to-stop-the-drop-in-homevalues.html?_r=0.

Freddie Mac, Glossary of Finance and Economic Terms (A-F), available at http://www.freddiemac.com/smm/a_f.htm#C.

Ann Fulmer, *This Used to Be Such a Nice Neighborhood: The Aftermath and Future of Mortgage Fraud* (Feb. 7, 2013).

Mark J. Garmaise, Borrower Misreporting and Loan Performance, 70 J. Fin., (Feb. 2015).

Confidential

Laurie Goodman, *To Understand Mortgage Default Rates, Ask These Three Questions,* *Urb. Inst.*, (Mar. 30, 2015), *available at* http://www.urban.org/urban-wire/understand-mortgage-default-rates-ask-these-three-questions.

Daniel L. Greenwald "The Mortgage Credit Channel of Macroeconomic Transmission," MIT Sloan School Working Paper (2016).

John Griffon, and Gonzalo Maturana, *Who Facilitated Misreporting in Securitized Loans?*, SSRN Working Paper No. 2256060 (Jan. 2016), available at http://ssrn.com/abstract =2256060.

Lakhbir S. Hayre, Manish Saraf, Robert Young, & Jiakai (David) Chen, *Modeling of Mortgage Defaults*, J. Fixed Income (Spring 2008).

Wei Jiang, Ashlyn Nelson, and Edward Vytlacil, *Liar's Loan? Effects of Origination Channel and Information Falsification on Mortgage Delinquency*, Rev. 96 Econ. & Stat., Vol. (Mar. 2014).

Kyle G. Lundstedt, *Modeling Mortgage Risk: Definitional Issues* (April 2005).

G. S.Maddala, *Limited-Dependent and Qualitative Variables in Econometrics* (1983).

Christopher Mayer, Karen Pence, and Shane M. Sherlund, *The Rise in Mortgage Defaults*, 23 J. Econ. Perspectives (2009).

MBA, National Delinquency Survey, *available at* http://www.mbaa.org/Researchand Forecasts/ProductsandSurveys/NationalDelinquencySurvey.htm.

MBA, Who We Are, available at https://www.mba.org/who-we-are.

Atif R. Mian and Amir Sufi, *Fraudulent Income Overstatement on Mortgage Applications During the Credit Expansion of 2002 to 2005*, NBER Working Paper No. 20947 (Feb. 2015).

Office of Policy Dev. & Research, U.S. Dep't of Hous. & Urban Dev., *Report to Congress on the Root Causes of the Foreclosure Crisis* (2010).

Christopher Palmer, *Why Did So Many Subprime Borrowers Default During the Crisis: Loose Credit or Plummeting Prices?* (Univ. of Cal. at Berkeley Working Paper 2014).

Anthony Pennington-Cross, *Credit History and the Performance of Prime and Nonprime Mortgages*, 27 J. Real Est. Fin. & Econ. (Nov. 2003).

Tomasz Piskorski, Amit Seru, & James Witkin, *Asset Quality Misrepresentation by Financial Intermediaries: Evidence from the RMBS Market*, 70 J. of Fin. (Dec. 2015).

Statement of John C. Dugan, Comptroller of the Currency Before the Financial Crisis Inquiry Commission (Apr. 8, 2010), *available at* http://www.occ.treas.gov/news-issuances/ congressionaltestimony/2010/pub-test-2010-39-written.pdf.

Testimony of Ann Fulmer Before the Financial Crisis Inquiry Commission (Sept. 21, 2010).

63

APPENDIX C: COMPARABLE DEALS IDENTIFIED BY DR. JAMES

rawdealname	Loan Count	Comparable Allegations
CWHEQ 2006-S10	21,750	MBIA Insurance Corp. v. Countrywide Home Loans, Inc., et al., Index No. 602825/2008 (N.Y. Sup. Ct., N.Y. Cnty.)
CWHEQ 2006-S09	11,715	MBIA Insurance Corp. v. Countrywide Home Loans, Inc., et al., Index No. 602825/2008 (N.Y. Sup. Ct., N.Y. Cnty.)
MLMI6FF1	10,203	Federal Housing Finance Agency v. Merrill Lynch & Co., Inc., et al., No. 11 Civ. 6202 (S.D.N.Y.) Public Employees' Retirement System of Mississippi v. Merrill Lynch & Co., Inc., et al., No. 09 Civ. 1392 (S.D.N.Y.)
CWHEQ 2006-S08	9,895	MBIA Insurance Corp. v. Countrywide Home Loans, Inc., et al., Index No. 602825/2008 (N.Y. Sup. Ct., N.Y. Cnty.)
FFM6FF18	7,836	Federal Housing Finance Agency v. Merrill Lynch & Co., Inc., et al., No. 11 Civ. 6202 (S.D.N.Y.) Public Employees' Retirement System of Mississippi v. Merrill Lynch & Co., Inc., et al., No. 09 Civ. 1392 (S.D.N.Y.)
HARBORVIEW2006-12	6,019	Federal Housing Finance Agency v. Royal Bank of Scotland Group PLC, et al., No. 11 Civ. 1383 (D. Conn.) New Jersey Carpenters Vacation Fund, et al., v. Royal Bank of Scotland Group PLC, et al., Civ. No. 08-5093 (S.D.N.Y.)
2006-S4*	5,810	
JPMAC 2006-CH2	5,151	Federal Housing Finance Agency v. JPMorgan Chase & Co., et al., No. 11 Civ. 6188 (S.D.N.Y.) Matter of U.S. Bank National Association, et al., Index No. 652382/2014 (N.Y. Sup. Ct., N.Y. Cnty.)
OWNI6OT1	5,144	Federal Housing Finance Agency v. Merrill Lynch & Co., Inc., et al., No. 11 Civ. 6202 (S.D.N.Y.)
GC06W2*	5,035	

CWABS 2006-23	4,672	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
SACO0612	4,487	Matter of U.S. Bank National Association, et al., Index No. 652382/2014 (N.Y. Sup. Ct., N.Y. Cnty.) U.S. Department of Justice Settlement with JPMorgan Chase
ABFC2006-HE1	4,454	Federal Housing Finance Agency v. Bank of America Corporation, et al., No. 11 Civ. 6195 (S.D.N.Y.)
CWABS 2006-25	4,404	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
JPMAC 2006-WMC4	4,374	Federal Housing Finance Agency v. JPMorgan Chase & Co., et al., No. 11 Civ. 6188 (S.D.N.Y.)
AMER HOME MTG 2006-3	4,272	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
CWABS 2006-24	4,056	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
WFHET 2006-003	3,861	United States v. Barclays Capital, Inc., et al., No. 16 Civ. 7057 (E.D.N.Y.)
GS061S*	3,833	
CSFB 2006-HEAT8	3,780	Federal Housing Finance Agency v. Credit Suisse Holdings (USA) Inc., et al., No. 11 Civ. 6200 (S.D.N.Y.)
HASCO 2006-HE2	3,748	Federal Housing Finance Agency v. HSBC North Am. Holdings Inc., et al., 11 Civ. 6189 (S.D.N.Y.)
MLMI6HE6	3,603	Federal Housing Finance Agency v. Merrill Lynch & Co., Inc., et al., No. 11 Civ. 6202 (S.D.N.Y.) Public Employees' Retirement System of Mississippi v. Merrill Lynch & Co., Inc., et al., No. 09 Civ. 1392 (S.D.N.Y.)
HARBORVIEW2006-14	3,568	Federal Housing Finance Agency v. Royal Bank of Scotland Group PLC, et al., No. 11 Civ. 1383 (D. Conn.) New Jersey Carpenters Vacation Fund, et al., v. Royal Bank of Scotland Group PLC, et al., Civ. No. 08-5093 (S.D.N.Y.)
GSAMP 2006-HE8	3,557	Federal Housing Finance Agency v. Goldman Sachs & Co., et al., 11 Civ. 6198 (S.D.N.Y.)

		U.S. Department of Justice Settlement with Goldman Sachs, Department of Justice Press Release No. 16-429
CWABS 2006-26	3,533	David Luther, et al., v. Countrywide Financial Corporation, No. BC 380698 (Cal. Sup. Ct., L.A. Cnty.) In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
BC06W4*	3,522	
LB0611	3,507	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
MASTR ABS 2006-NC3	3,312	Federal Housing Finance Agency v. UBS Americas Inc., No. 11 Civ. 5201 (S.D.N.Y.)
DEUTSCHE ALT2006-AR6	3,180	
BSMF6SL6	3,144	Matter of U.S. Bank National Association, et al., Index No. 652382/2014 (N.Y. Sup. Ct., N.Y. Cnty.) Federal Housing Finance Agency v. JPMorgan Chase & Co., et al., No. 11 Civ. 6188 (S.D.N.Y.)
IN06S5*	3,089	
MASTR ABS 2006-HE5	2,968	Federal Housing Finance Agency v. JPMorgan Chase & Co., et al., No. 11 Civ. 6188 (S.D.N.Y.)
SASCO 2006-BC6	2,946	In re Lehman Brothers Securities and ERISA Litigation, No. 09 MD 2017 (S.D.N.Y.)
SOUNDVIEW 2006-EQ2	2,921	
IM06S5*	2,885	
CARR06-NC5	2,842	Commonwealth of Virginia ex rel. Integra Rec LLC v. Barclays Capital Inc., et al., No. CL14-399 (Va. Cir. Ct., Richmond Cnty.)
BS06HE10	2,693	Federal Housing Finance Agency v. JPMorgan Chase & Co., et al., No. 11 Civ. 6188 (S.D.N.Y.)
NORMURA 2006-S5	2,668	
BSMF2006-AR5	2,606	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
CWABS 2006-BC05	2,553	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
CWALT 2006-43 CB	2,542	In re Bank of New York Mellon, Index No.

		651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
CSFB 2006-HEMT6	2,486	New Jersey Carpenters Health Fund v. DLJ Mortgage Capital, Inc., et al., No. 08 Civ. 5653 (S.D.N.Y.)
CWALT 2006-OC11	2,467	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
BSALTA2006-8	2,449	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
FREMONT 2006-E	2,393	Federal Housing Finance Agency v. Goldman Sachs & Co., et al., No. 11 Civ. 6198 (S.D.N.Y.)
BAYVIEW 2006-D	2,359	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
RALI 2006-QS18	2,319	New Jersey Carpenters Health Fund, et al., v. Residential Capital, LLC, et al., No. 08 Civ. 8781 (S.D.N.Y.)
BC0601*	2,237	
FIELDSTONE2006-S1	2,232	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
2006-HE3*	2,161	
RENAISSANCE 2006-4	2,007	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237

Commonwealth of Virginia ex rel. Integra Rec LLC v. Barclays Capital Inc., et al., No. CL14-399 (Va. Cir. Ct., Richmond Cnty.) |
GSAA HET 06-20	1,987	
SOC GEN 2006-OPT2	1,986	Federal Housing Finance Agency v. SG Americas, et al., No. 11 Civ. 6203 (S.D.N.Y.)
BC06F4*	1,905	
IN06G3*	1,791	
WM006HE5	1,772	Federal Housing Finance Agency v. JPMorgan Chase & Co., et al., No. 11 Civ. 6188 (S.D.N.Y.)

U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237 |
| TBW 2006-6 | 1,705 | Massachusetts Mutual Life Insurance Company v. Credit Suisse First Boston, et al., No. 11 Civ. 30048 (D. Mass.) |
| CWALT 2006-OA21 | 1,701 | In re Bank of New York Mellon, Index No. |

		651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
LEHMAN TRUST 2006-9	1,682	
GSAMP 2006-FM3	1,570	Federal Housing Finance Agency v. Goldman Sachs & Co., et al., No. 11 Civ. 6198 (S.D.N.Y.)
LHXS0620	1,550	Stichting Pensioenfonds ABP v. Merrill Lynch & Co., Inc., et al., No. 10 Civ. 6637 (S.D.N.Y.)
CBAS6CB9	1,461	U.S. Department of Justice Settlement with Goldman Sachs, Department of Justice Press Release No. 16-429
RAAC 2006-SP4	1,445	
RFMSII 2006-HI5	1,443	
FH06-FA8*	1,363	
BOAL 2006-9	1,324	
WAMU 2006-AR19	1,093	Policemen's Annuity and Benefit Fund of the City of Chicago v. Bank of America, N.A., Nos. 12 Civ. 2865 & 13 Civ. 5978 (S.D.N.Y.)
RAMP 2006-RZ5	1,092	
MSM 2006-17XS	1,083	In re Morgan Stanley Mortgage Pass-Through Certificates Litigation, No. 09 Civ. 2137 (S.D.N.Y.)
RALI 2006-QO10	1,075	New Jersey Carpenters Health Fund, et al., v. Residential Capital, LLC, et al., No. 08 Civ. 8781 (S.D.N.Y.)
CMALT 2006-A7	1,068	Allstate Insurance Company v. CitiMortgage, Inc., No. 11 Civ. 1927 (S.D.N.Y.)
RFMSI 2006-S12	1,058	
SASCO 2006-RF4	1,032	
RALI 2006-QS17	1,030	New Jersey Carpenters Health Fund, et al., v. Residential Capital, LLC, et al., No. 08 Civ. 8781 (S.D.N.Y.)
GPMF 2006-AR8	1,003	
LUMINENT 2006-7	1,003	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
IN06Z2*	971	
CSSLT061	956	
DEUTSCHE ALT2006-OA1	897	
JPMMT 2006-S4	871	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
CWMBS 2006-21	772	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
CWMBS 2006-20	768	In re Bank of New York Mellon, Index No.

		651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
HALO 2006-2	746	
IN06Z3*	739	
WAMU 2006-AR18	737	Commonwealth of Virginia ex rel. Integra Rec LLC v. Barclays Capital Inc., et al., No. CL14-399 (Va. Cir. Ct., Richmond Cnty.)
CWALT 2006-45 T1	730	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
GPMF 2006-OH1	709	National Credit Union Administration Settlement with Goldman Sachs, dated April 8, 2016
JPMMT 2006-A7	645	JPMorgan Chase Settlement Agreement dated July 29, 2014 Matter of U.S. Bank National Association, et al., Index No. 652382/2014 (N.Y. Sup. Ct., N.Y. Cnty.)
BAFC 2006-J	628	
CWALT 2006-46	623	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
CWALT 2006-HY13	602	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
SASCO 2006-Z	592	
Chevy 2006-4	552	
WMALT 2006-AR10	528	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
BAYCMPT2006-SP2	520	U.S. Department of Justice Settlement with JPMorgan Chase, Department of Justice Press Release No. 13-1237
CWALT 2006-OA22	489	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
WMLT 2006-ALT1	481	National Credit Union Administration Board v. Wachovia Capital Markets, LLC, No. 13 Civ. 6719 (S.D.N.Y.)
IN06L4*	476	
IN0616*	475	
CWALT 2006-J08	468	In re Bank of New York Mellon, Index No. 651786/2011 (N.Y. Sup. Ct., N.Y. Cnty.)
SARM 2006-12	448	
HARBORVIEW2006-13	396	
GSR 2006-10F	387	
FH06-04*	324	

FH06-AR4*	275	
RALI 2006-QA11	271	New Jersey Carpenters Health Fund, et al., v. Residential Capital, LLC, et al., No. 08 Civ. 8781 (S.D.N.Y.)
IN06Z1*	265	
CMSI 2006-07	218	

 * Not identifiable based on upon production provided.